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THE UNIVERSITY OF ALBERTA

STRESS-SEEKING AND ICE HOCKEY GOALTENDERS

by

DALE GEORGE HENWOOD (C)

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF ARTS

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EDMONTON, ALBERTA

FALL, 1976

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled "Stress-Seeking and Ice Hockey Goaltenders" submitted by Dale George Henwood in partial fulfilment of the requirements for the degree of Master of Arts.

Margaret Ellis
Supervisor

Murray W. Smith

Clare J. Drake

Date June 17, 1976.

ABSTRACT

The purposes of this study were to examine hockey goaltenders' need or desire for stress and to determine if they played this particular position for the stress it generates and the challenge it provides.

A questionnaire to examine stress-seeking was constructed specifically for this study. The questionnaire was mailed to 203 goaltenders in four different leagues: midget goaltenders (N = 24) from the midget "AA" league in the Edmonton Metropolitan Hockey Association, senior goaltenders (N = 17) from the Edmonton Central Hockey League, university goaltenders (N = 82) in the Canadian Intercollegiate Athletic Union and professional goaltenders (N = 80) from both the National Hockey League and the World Hockey Association. One hundred and eighteen questionnaires were returned.

The subjects were grouped according to four variables: age, years of experience, level of play and status (amateur - professional) and, on the basis of each variable, were further classified into several subgroups. An analysis of variance was conducted on the mean score of the subgroups according to each of the four variables. The two-tailed t-test method of analysis was used to examine differences between the mean response score of the goaltending section and the mean response score of the general life section. The level of confidence was chosen at five percent (.05) and all five hypotheses were presented in the null form.

Findings indicated that no significant differences in stress-seeking existed on the basis of the mean scores for age, level of play, between amateurs and professionals, or between the mean response score on the general life section and the mean response score on the goaltending section. However, a significant difference in the stress-seeking tendency occurred on the basis of years of experience.

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CHAPTER I

STATEMENT OF THE PROBLEM

I. INTRODUCTION

Challenge is the focus and mainspring of all human activity. Since the beginning of the recording of man's activities some humans have been attracted to sports which are challenging and characterized by high degrees of excitement, stress, pressure and tension. Some men appear addicted to the challenges of sport and are happiest while under their influence; they seem intrigued by stresses which trigger a unique feeling of elation. Many men have thrived on adventures and feats of stress-seeking and have pursued them when they were not necessary for survival or existence (Harris, 1972, 1973). Often they may be accomplished through creating artificial obstacles, or may take the form of competition or rivalry, although there is no need to declare victor or defeated (Progen, 1972). Still others get their satisfaction vicariously by observing their fellow men under the influence of pressure and stress (Harris, 1972, 1973). At times, even the timid are motivated to take awesome risks such as racing their vehicles at one hundred miles an hour for the exhilaration it provides.

Daily, men the world over and from all walks of life undertake hazardous enterprises for their own enjoyment and satisfaction. Literally thousands of humans risk their

existence in activities which are undertaken in an attempt to serve their own individual need for this excitement, challenge and stress. They enjoy challenging the mighty forces of nature; they mountain climb, sky dive, scuba dive, race motorcycles, white water canoe, stunt fly and even devise new means of obtaining thrills by experimenting with activities such as ski-sailing and human flying (Harris, 1972).

Klausner (1968) contended that play and sport were the only socially acceptable manners in which one can achieve free enjoyment and toleration of these stresses, while Alderman (1974) stated sport and physical activity may be a prime mover for achieving and fulfilling such goals. Therefore, it could be speculated that one of the functions of sport may be to provide individuals, who have this need for challenge and stress, with an acceptable means by which it can be satisfied.

One of the tenets of this paper is that the position of the goaltender in ice hockey is one of high stress. The reasons for this are primarily two fold: first of all, goaltending is one of the most, if not the most, important positions on a hockey team. As such, the goaltender is the final line of defense and ultimately any mistakes made by him are reflected on the score board. Victory may depend upon his performance and as a result the other players usually attempt to provide care and protection for him.

Secondly, goaltenders are like magnets to the action, they have pucks flying at them, are victims of screens and deflections, and have players rushing around them at great speeds. Nevertheless, they are still required to perform under these stressful circumstances with the success of the team being dependent upon how well they handle them.

This study was an attempt to assess the attitudes and feelings ice hockey goaltenders had regarding their participation in this sport. It was assumed that the position of the goaltender in ice hockey is one which is filled with stress, therefore the salience of a stress-seeking motive was investigated. By means of a questionnaire the subjects were asked why they initially became involved in playing this particular position as well as why they continued to play.

In the following pages, this extremely complex phenomenon was examined in detail as the investigator attempted to uncover some of the factors influencing such behavior. In addition, some of the many theories postulated in an attempt to explain this stress-seeking behavior and therefore attach some sense of meaning or understanding to it were discussed. It became necessary to examine many diverse facets in order to get a comprehensive understanding of stress-seeking.

II. THE PROBLEM

1. Statement of the Problem: The central purpose of this study was to determine if goaltenders participate in this sport, and in this particular position, due to the stress it generates and the challenge it provides.

The specific objectives of the study were:

A. To determine if this need or desire for stress changes as a function of age.

B. To determine if this need or desire changes with experience.

C. To determine if any significant differences may be observed in this need or desire for stress due to the level of competition with which one is involved.

D. To determine if any significant relationship may be observed between amateur and professional goaltenders and their need or desire for this stress.

E. To determine if this stress-seeking behavior applies to sports situations alone or whether it is evident in all aspects of the individual's life.

The specific objectives of this study were obtained by means of a questionnaire.

2. Hypotheses: Five null hypotheses were presented in this study.

A. No differences in stress-seeking tendencies will exist between goaltenders in the various age groups.

B. No differences in stress-seeking tendencies will exist

between goaltenders with various amounts of experience in goaltending.

C. No differences in stress-seeking tendencies will be evident between goaltenders in the various levels of competition.

D. No differences in stress-seeking tendencies will be observed between amateur and professional goaltenders.

E. No differences in stress-seeking tendencies will exist between a goaltender's responses in hockey situations compared to his responses in general life situations.

III. LIMITATIONS

The four groups used in the sample for this investigation were specifically selected and participants were asked to complete and return a questionnaire. The midget and senior groups were limited to goaltenders registered in leagues in the immediate Edmonton vicinity, while all college goaltenders in the Canadian Intercollegiate Athletic Union and all professional goaltenders in the two major leagues (World Hockey Association and National Hockey League) were sent questionnaires.

The present study was limited by the validity and reliability of the questions and the interpretation of the questions at the time they were being answered. The respondents were required to select responses from a given set of four choices on the questionnaire.

IV. DELIMITATIONS

This study was delimited to selected groups of goaltenders who played during the 1975-76 season. The subjects were classified as midget, senior, university and professional goaltenders. The first group was selected from midget "AA" goaltenders who played in the Edmonton Metropolitan Hockey Association (E.M.H.A.), the second category was selected from goaltenders registered in a senior league, the Edmonton Central Hockey League (E.C.H.L.), the third from goaltenders in the Canadian Intercollegiate Athletic Union (C.I.A.U.), while the fourth sample included professional goaltenders in the National Hockey League (N.H.L.) and the World Hockey Association (W.H.A.).

V. DEFINITION OF TERMS

Dys-Stress. An unpleasant, often painful or damaging type of stress (Bernard, 1968).

Eustress. A pleasant type of stress. Associated with adventure, excitement, exhilarating and pleasant experiences (Bernard, 1968).

Goaltender. The player designated specifically to protect his team's net or goal.

Stress. Physical and/or psychological disturbances which tax the body's systems.

Stress-seeking. Behavior designated to increase the intensity of emotion or level of activation of an organism (Klausner, 1968).

VI. IMPORTANCE OF THE STUDY

Traditionally, stress was viewed as a pathogenic factor, something to be avoided or at least minimized (Selye, 1956; Lazarus, 1966, 1971; Levi, 1967; Klausner, 1968). Thus, it was viewed as a dysfunction to participation in physical activity. In the past decade, stress has been viewed as having positive, as well as negative, connotations (Martens, 1971; Berlin, 1974; Bernard, 1968; Harris, 1970, 1972, 1973). The later theory is becoming generally accepted today, although very few studies have been conducted to support this position.

To date, very little research has been secured relating to ice hockey goaltenders and why they choose to play this position. This present study was an attempt to see if stress could have a motivating function with respect to the goaltender's participation in ice hockey. This study was important because it was one of a few comprehensive studies on goaltenders and was an attempt to determine more specifically the salience of the stress-seeking factor for goaltenders. Finally, very little is known (or, at any rate, published) about ice hockey goaltenders from a motivation standpoint. The following study was conducted in appreciation of the need for further information in this particular area of research.

CHAPTER II

REVIEW OF THE LITERATURE

In this chapter, the relevant literature directly related to the research problem has been reviewed. Information concerning the neural mechanisms of arousal, various types of stress and a number of the popular theories were reviewed first. Studies and writings with direct emphasis on stress in sports were considered next. Finally, stress related directly to hockey and goaltending was presented.

I. NEURAL MECHANISMS OF AROUSAL

There has been extensive work undertaken on the neural mechanisms involved in arousal and the evidence seems to indicate that the reticular arousal (activating) system (RAS) of the brain is the primary anatomical location for this phenomenon. The RAS is a diffuse network of interlacing fibres and nerve cells and is the mediation mechanism responsible for alerting the individual, or placing him in a condition of excitability, arousal or activation (Ellis, 1973). It is a series of structures located in the mid-brain and brain stem which receives, as well as projects, diffuse impulses into higher brain centers such as the cortex (Sage, 1971). Very succinctly, the RAS has two parts, the mesencephalic and the thalamic portions. Stimulation of the mesencephalon (mid-brain) and portions of the thalamus increase the activity in the cortex region (Guyton, 1969).

Input reaching the mesencephalic part causes a diffuse flow of impulses upwards through the area of the thalamus and hence to all parts of the cortex area. This results in a generalized increase in cerebral activity. The thalamic section of the RAS differs slightly from the mesencephalic portion in that localized regions of the cerebral cortex are activated when the thalamic portion is stimulated. Consequently, rather than initiating activity in the entire cortex, signals from specific parts of the thalamus are responsible for activity in specific parts of the cortex (Guyton, 1969).

Evidence seems to indicate that the hypothalamus is the location for special motivation centers regulating anger, fear, eating, sex and pleasure motivation. Thus, if the stimulation is enjoyable for the organism, it is believed that the "pleasure center" is being stimulated (Sage, 1971: 403). If the RAS is anaesthetized or injured in some way, the organism is inclined to sleepiness. But, if excited, the organism becomes very alert (Ellis, 1973).

Schachter and Singer (1964: 427) indicated "... that an emotional state may be considered a function of a state of physiological arousal and of a cognition appropriate to this state of arousal". They showed that once arousal occurs, the individual labels this state as "joy", "sorrow", "jealousy", or other emotion according to his knowledge of the immediate situation. They suggested cognitive factors determine the emotional labels attached to a given situation

and that humans "... can be readily manipulated into states of euphoria, anger and amusement" (Schachter and Singer, 1964: 447). Their findings imply that one's state of emotional arousal may be manipulated by other individuals, for example, by a coach.

There is an optimal level of arousal for each individual, for each situation and for each task to be learned or performed. The system's optimal state of activation implies the ability to select and discriminate, from a vast number of cues, the most appropriate one or ones to which to respond (Singer, 1975). A certain level of arousal is essential in that it has an organizing effect on behavior and appears to enhance transmissions to the brain (Sage, 1971). Since this general arousal state may be governed by the organism itself, poorly skilled performers often do poorly in pressure situations, while the sign of a skilled performer is that he excels when pressure and tensions are greatest (Singer, 1975).

II. TYPES OF STRESS

Introduction

Stress is a term which is a regular part of man's daily vocabulary, being familiar to laymen and professionals alike (Lazarus, 1966). The concept of stress, which generally has no fixed usage, refers to tension, conflict, frustration, arousal, anxiety and the like. The term "stress" has multiple uses and has been employed with many connotations, some of them undesirable (Harris, 1972). It has been used

as a synonym for words such as anxiety, conflict, ego threat, emotional distress, frustration, tension, arousal and so on. Since there is no agreed upon terminology, this leads to inconsistency and confusion when discussing this phenomenon (Levi, 1967; Lazarus, 1966).

The concept of stress seems to have originated in the field of engineering where it referred to any external force directed at a physical object (Levi, 1967). The Canadian endocrinologist Hans Selye (1956), popularized the term stress in physiology where he was concerned with the adaptation of the body through physiological mechanisms to the stresses of life. Very simply, stress is a situation or condition which causes disturbance to the tissue system. It may be psychological, physical, or both. Therefore, it refers to relations between an organism and an environment, rather than to one or the other (Lazarus, 1971).

All individuals encounter minor stresses as they grow older, and to develop normal and adaptive behavior some degree of stress is necessary (Levine, 1971). The limits within which one is able to tolerate stress vary from person to person but, in the general sense, the human body and mind are normally able to adapt to the stresses encountered in new situations (Miller and Keane, 1972).

For medical purposes, Miller and Keane (1972) indicated that physical stress may be divided into two principal types:

a) Emergency stress which results when a person is

confronted with immediate threat, such as a wound or injury; and

b) Continuing stress which is a reaction caused by changes in the body during acute and chronic diseases, during puberty, pregnancy, menopause or as a result of continued exposure to excessive vibrations, noise, or fumes.

Psychological stress results when the individual imagines or foresees danger or when actual danger appears. The thought of danger, or the vicarious experience of thrilling situations like plays, films or stories are instances which will often result in psychological stress (Miller and Keane, 1972).

According to Levi (1967a: 166) the basic difference between physiological and psychological stress is that physiological stress "... usually produces highly stereotyped responses through innate neural and hormonal mechanisms", whereas psychological stress "... is not invariably followed by a predictable response". Further, Ulrich (1960) suggested that the physiological manifestations of stress are easy to define as they are reflected in changes in respiration, temperature, and circulation. The psychological manifestations are more difficult to define and consequently must be measured, in part, by the behavioral patterns of the individual.

Humans can get "high" on their stress hormones. Stress

stimulates various glands that produce hormones which may induce a kind of drunkenness (Selye, 1969). It will be illustrated in the following pages that some individuals actually seek and enjoy stress, while others attempt to avoid it.

Sensory stimulation, or one's sensory incentive system operates in such a manner as to regulate "man's bodily experience" (Birch and Veroff, 1966). The effect this sensory stimulation has on an organism ultimately determines whether the individual will approach or avoid a situation producing this reaction (Birch and Veroff, 1966).

Need for Sensory Stimulation

There are two basic theories regarding the need of the human organism for sensory stimulation. The first of these two theories is homeostasis, which Cratty (1967: 134-5) defines as:

> ... the general and specific processes which enable the organism to maintain its physiological integrity through balancing internal adjustments with external and internal stresses.

The theory of homeostasis as the primary cause of human behavior was first introduced in the late nineteenth century and received wide acceptance at that time. Hans Selye, a Canadian physiologist and his associates have devoted a lifetime to studying the effects of harmful stress. Selye (1956) simply stated that stress is stress; it has its own characteristic form and response but no specific cause or causes. That is, stress causes certain changes in an

organism's chemical composition which may be accurately appraised, but a specific etiology to this complex phenomenon is not known (Harris, 1972). The stress Selye explored is caused by psychic, social or physical outcomes and, in general, it was viewed in terms of disorder or disease. With stress, there is a disruption in behavior that involves something undesirable and threatening, as well as discomfort, tightness and nervousness. This stress may be viewed as essentially pathogenic and is not the type of stress a normal human being would actively seek out or attempt to create. It would be avoided or at least minimized, as far as was possible.

Walter B. Cannon (1939) was one of the first and major proponents of the homeostasis theory which stated that an organism would engage in behaviors which tended to return the organism to a condition of equilibrium. The major premise that the internal chemistry of the human body is on a delicate balance of chemicals is well known. Supporters of this position indicate that people oscillate about a null point and that one attempts to reach a point of balance by striving for central tendency. Stimuli which were disturbing to the internal chemical balance precipitated a drive from within the organism to restore the homeostatic condition. Therefore, the organism seeks a zero point and is considered self-nulling.

It is obvious that sports impose stress on the human

body. Whether these are physical, psychic or social in nature, is not important with respect to the manner in which the body attempts to resolve these stresses. Ulrich (1960) contended that when an individual participates in sports or physical activity, the homeostatic balance of the body is upset and thus a state of "stress" exists until this balance is restored. As a result, the individual would engage in behaviors which tended to reduce this disequilibrium. However, Cannon (cited in Cratty, 1967: 135) stated "... organisms at times seem to seek imbalance by undertaking self-directed activities as stimulating kinds of undertakings."

The above statement leads us directly to the second theory of stimulation and behavior; namely stress-seeking or tension-seeking, and in recent years a great surge of information has been published on the stress-seeking theory. This theory promotes the belief that an individual actively and purposely seeks a variety of new stimuli which energize the individual. The organism seeks means to momentarily create an imbalance in the homeostatic mechanism. C. R. Rogers (1970: 375) noted:

> The work in the field of sensory deprivation underscores even more strongly the fact that tension reduction or the absence of stimulation is a far cry from being the desired state of the organism.

Lawther (1968: 104) stated it in more precise terms when he suggested "... a continuance of a quiescent state is annoying to the healthy human."

Bernard, in Why Man Takes Chances (Klausner, 1968) has recently coined two new terms applied to this intriguing aspect of human behavior. In categorizing the various types of stress she discussed two separate terms: dys-stress and eustress. The former was identified as unpleasant and sometimes painful or damaging and is the type of stress with which Selye and his colleagues were concerned. A pleasant type of stress, eustress, is the category of stress that is associated with adventure, excitement, exhilaration and pleasant experiences. Harris (1972, 1973) indicated that it is enjoyable, it enhances vital sensations and "turns people on". People like to experience eustress and the sensations with which it is concomitant.

Bernard (1968) differentiated between being "turned on" with respect to thrilling types of experiences and being turned on by frustrations, tensions and anxiety which are a result of the coping, reacting and surviving behaviors of human beings. Harris (1970) commented that a paradoxical situation is observed in the stress-seeker in that he actively seeks stressful and often painful situations rather than attempting to by-pass them. She suggested this may be resolved by the fact that both pleasure and pain evolve from the same reservoir of underlying excitement. Both types of stress can be voluntarily sought after but persons seeking dys-stress would be considered to live a "martyr" type of existence which is usually difficult and depressing.

III. THEORIES OF STRESS-SEEKING

Introduction

Persons concerned with studying behavior generally agree that one of the major variables affecting one's behavior is that of motivation. Man has been forever trying to answer the question: why does an individual select one path of action among a series of possible alternatives? However, to date there has been only very limited literature devoted to empirically validate what motivates individuals to become engaged in various forms of activity. Just as there are many theories of human motivation, so are there several theories which are attempts to ascertain why individuals voluntarily become involved in stressful activities.

There are basically two streams into which one's play behavior or participation in physical activity may fall. Traditional theories were prominent about the turn of the century and focused on play as a biological phenomenon which was instinctual in nature. Twentieth century theories took a different form and attempted to determine how behavior could best be explained. The play theories of Freud and Erikson are examples of the psychoanalytic position; Hull, Dollard and Miller and White represent the behavioral stream, while Mead and Piaget reflect the cognitive theory of play behavior (Alderman, 1974). As will be seen, there is considerable overlapping in the various views and none

totally explain this behavior and therefore one is left to formulate his own position based on the ideas presented in a number of the theories. This approach to providing an explanation for stress-seeking behavior is based upon the assumption that people voluntarily engage in stress-producing situations due to the pleasure and excitement they are able to derive from them. Since play is considered a precursor to sport in later life, if one can understand more fully why an individual plays, it will be an easier task to determine why man chooses to become involved in playful behaviors and eventually in feats and adventures that are arousal-elevating in nature.

As a result of numerous dissonant studies several new and sophisticated theories of behavior have evolved in the past few decades. The major premise of these theories is that the behavior of an organism can often be better explained in terms of the organism attempting to increase stress rather than in terms of stress reduction (Alderman, 1974).

M. J. Ellis (1971, 1973) has devoted a considerable amount of time examining theories of why people play. He reported that theories simplify explanations of previous experience and information and likely most importantly, have the capacity to predict outcomes for the future. Stress-seeking is just one of the modern theories of play behavior which he feels helps to explain and predict man's behavior and participation in play and sports.

Several of the theories which offer plausible explanations as to why some individuals initially become involved in activities and why others continue to participate in stress-seeking activities are discussed in the next section.

Risk-Effect

Dr. Sol Roy Rosenthal (cited in Furlong, 1969), a professor of preventative medicine at the University of Illinois, has prepared an intriguing theory that sports involving eustress can trigger a unique feeling of elation in the individual. He postulated a "risk-exercise effect" theory, the thesis of which stated calculated risks, on a physical and mental level, are essential for daily well-being (Furlong, 1969; Harris, 1970; Progen, 1972).

His theory suggested there is a physiological basis, perhaps a chemical reason, why individuals voluntarily pursue sports such as fox hunting, sky diving, mountain climbing and automobile racing. This is the same type of stress referred to earlier in the work of Bernard (1968). Rosenthal contended these individuals experience unusual exhilaration, even euphoria, as a consequence of their risk-exercise (Furlong, 1969). In studies conducted by Rosenthal, it was found that the majority of people felt invigorated after risk-exercise and that this characteristic feeling was so intense, like being addicted, that the individual felt he must go back and experience this elated feeling again

(Furlong, 1969). To experience the ultimate effect of this risk-exercise, the person must be attempting risks which are within his own competence. That is, he has to be well-trained in the particular sport so as to ensure the risk is a calculated one. Harris (1973) reflected the same opinion when she stated that once the risks were well known and calculated, they became sport.

In sports, if an individual knows all the possible courses of action and the probable outcomes of a particular task, then the decision becomes one of choosing the alternative with the most attractive pay off. Consequently, some individuals put themselves in precarious predicaments and take risks of varying degrees. Some people, compulsive gamblers for example, like to choose tasks with a very low probability. Others seem to ignore known possibilities and act in spite of them. Thus, the excitement associated with competing against great odds, may be what inspires one to these activities. It appears that in some sporting situations this taking of risks is an end in itself and not merely a means to an end. That is, it may be the process, rather than the product, which is the excitement producing aspect (Harris, 1972, 1973).

According to Rosenthal, a person must learn to control his anxiety before he is able to experience these feelings of exhilaration and euphoria that result from situations involving risk, tension, stress and danger (Harris, 1973). The feeling that follows the type of activities to which

Rosenthal had referred differs from that feeling experienced after a game of tennis or golf when the feeling is primarily one of fatigue and satisfaction. Participants in stress-seeking sports report great euphoria and exhilaration that can be achieved in no other way than by engaging in this particular class of activities (Harris, 1972).

There appears to be sufficient evidence and documentation to support the fact that an exhilaration process actually does result and happens specifically in reaction to risk-exercise and sport (Harris, 1973). Additional studies need to be conducted to determine the exact mechanism(s) for this particular response.

Reduction and Augmentation

Pain, or an individual's perception of pain, will have a direct influence on his performance in competitive sports situations (Singer, 1975). Ryan and Kovacic (1966) have hypothesized the willingness of an individual to withstand pain may be a determinant of the particular category of activity in which he selects to participate. Physiologically, all individuals have relatively the same pain mechanisms (Singer, 1975) but, by observation of athletic events, it seems plausible that one's level of pain tolerance is related to the athletic activities he chooses for his enjoyment. In some tasks, and in many contact sports such as football, hockey, boxing, and wrestling, an individual's capacity to tolerate pain may be an essential determinant of

his eventual success. Several variables have a direct bearing on one's threshold for pain, and probably nowhere do pain and pleasure confront each other as completely as in the position of goaltender. One's previous experience partially determines an individual's ability to cope with painful experiences and his desire to overcome pain. In addition, this threshold may be related to genetic factors as well as a host of other factors (Singer, 1975).

Dr. Robert Kerlan (cited in Kram, 1976), a renowned sports orthopedist, indicated that the pain threshold for superstars or top level athletes is high. It is not known "... if these athletes can accept more pain, but they definitely don't feel as much" (Kram, 1976: 60). Kerlan felt this was related to the athletes' constitutional make-up, although this has not yet been determined. Houston (1967) said pain and hardship are not the goals of the stress-seeker - he is not a masochist - rather he must accept and tolerate this discomfort in order that he may know the pleasure of the sport.

Ryan and his colleagues have demonstrated there may be a relationship between an individual's perception of pain and his athletic participation (Ryan, 1966, 1969). To substantiate his theory, Ryan tested three groups of male students: one group had participated in contact sports, one in non-contact sports such as tennis or golf and the third

group did not participate in any sports. Although no difference in pain threshold was observed, there was a significant difference in the amount of pain the test groups were willing to endure. The contact sport group was willing to experience the most pain and the non-participants the least, with the non-contact participants falling in the intermediate position. The authors concluded a relationship existed between one's perception of sensory input and the category of activity they selected for participation (Harris, 1973; Ryan, 1969).

Certain individuals appear to consistently "reduce" the intensity of their perceptions while others appear to "augment" or amplify the intensity of their perceptions (Ryan and Kovacic, 1966). The findings of Petrie and her associates (1960, 1962, 1963) tend to suggest that individual differences in pain tolerance are paralleled by differences in perception. The reducers tend, subjectively, to decrease perceived size and consequently tolerate pain well, while the augmenters are opposite and tend subjectively to increase perceived size and are intolerant of pain. The moderate falls between these two extremes and alters only slightly what he perceives (Petrie, 1963). Therefore, one's ability to tolerate suffering appears to be partially a result of one's tendency to reduce the perceptual intensity of the stimulation (Petrie, 1962).

Participants classified as reducers tend to be stoical

with pain while augmenters show a poor tolerance for pain. Additional research indicated that persons who successfully reduce this sensory input tended to be more extroverted, more mesomorphic, and less tolerant of sensory deprivation. All these "reducer" characteristics have been frequently associated with athletic groups (Ryan and Kovacic, 1966). The problem of cause and effect and its relationship to athletic participation and pain tolerance still remains to be answered.

From the preceding discussion, it appears that the perceptual characteristics of the individual are major determinants as to the amount of pain one is willing to accept. Petrie's research (1960, 1962, 1963) clearly supports her theory that there is a generalized tendency for certain persons to consistently enlarge this perception of stimulation and for others to consistently diminish perception (Ryan, 1969). This implies reducers are able to withstand more pain and therefore seems to suggest they would seek additional stimulation of some sort or another. Thus, it seems plausible that an athlete in contact sports may be willing to endure more pain because he has experienced it before and knows the outcomes will not be significant.

The work of Petrie and Ryan and Kovacic and their theories of the augmenter and the reducer appear to add support for the thesis of sports involvement being categorized as stress-seeking.

Level of Activation

Maddi (1968) and Fiske and Maddi (1971) have proposed a general theory of personality which they entitled a consistency model. They contended behavior is primarily determined by the formative influence of the feedback an individual receives from both his internal environment as well as his external world. If the feedback one acquires from other individuals and events in his environment is congruent with what he anticipated, then a state of psychological quiescence results. When feedback is not consistent with what the individual expected, then stress, anxiety and discomfort occur until the person engages in activities to reduce or increase this stimulation. Thus, there is a continual effort to preserve the consistency between the feedback one receives and his expectations of this feedback (Alderman, 1974). The basic grounds of this interpretation of the development of personality is that personality in general is, to a large extent, moulded by the intensity, meaningfulness and variety of stimulation one is exposed to throughout life (Alderman, 1974).

This consistency model places emphasis on one's customary degree of stress, excitement and alertness (termed activation) and that which exists at a given time. Activation refers psychologically to alertness, tension, and excitement and neurophysiologically to cortical excitation (Alderman, 1974). Maddi (1968) indicated that the core

tendency of one's personality was to strive to maintain an activation level to which he was accustomed. The emphasis of this viewpoint centers on the discrepancies between one's actual level of activation at a given moment and the level which is customary for him. Discrepancies between one's customary and one's actual level of activation will always produce behavior aimed at attempting to reduce the discrepancy (Maddi, 1968). As an example, if a situation is not exciting enough for an individual, then he partakes in specific activities which attempt to increase his level of excitement. Therefore, this match or mismatch is the major determinant of behavior.

With respect to one's customary level of activation, the inherent assumption is that individuals experience a fairly consistent level of activation, arousal, stress, tension and excitement on a day to day basis and therefore, over a long period of time, become accustomed to this particular level and it becomes incorporated into this psychological structure (Alderman, 1974, 1974a). Hence, it is a consequence of experiences accumulated throughout one's life. This level of activation experienced at a particular moment in time may be viewed on a continuum, from deep sleep at one end, to intense emotion at the opposite end of the spectrum. Each individual would have a diurnal cycle for heart rate, reaction time, body temperature and the like, which would be fairly constant for him but would reflect

wide variations in cerebral activity especially during the waking hours (Sage, 1971; Fiske and Maddi, 1971). Everyone has a normal level of activation which is a core characteristic of their personality (Maddi, 1968).

This concept of activation is viewed in neurological terms and is a neuropsychological concept. Therefore, for our purposes it was not necessary to delineate the precise neuroanatomical structures involved other than to mention this refers to the general state of excitement in the reticular formation and cortex of one's brain (Maddi, 1968). Fiske and Maddi (1971) described this level of activation in terms of three dimensions and three sources of stimulation. These were considered the determinants of one's state of excitation. Intensity, meaningfulness and variation are the three dimensions of stimulation acting at a given moment on an individual, while Fiske and Maddi see the three sources of stimulation as exteroceptive, interoceptive and cortical.

The dimensions of stimulation are (Fiske and Maddi, 1971):

1. The intensity which denotes the pure physical energy of the stimulation. The distinction being, the difference between the cheering spectators at a hockey game compared to the silence experienced by a marathon runner. That is, an intense stimulus has more impact on the organism than a weaker one.
2. The meaningfulness which refers to the significance, relevance or importance the stimulation holds for an

individual. For example, a siren has more relevance if the police car is chasing you than if it is chasing another car.

3. The variation of stimulation which refers to stimulation which is different from that which was experienced prior to it. This difference may be in intensity or meaning. Variation is interpreted in terms of change, novelty and unexpectedness:

a. Change refers to current stimulation which is unlike the immediately preceding situation.

b. Novelty is the second aspect of variation and refers to present stimulation which is unusual, or new to the person.

c. The final aspect, that of unexpectedness, refers to stimulation which deviates from what one expected it would be.

These dimensions of stimulation may act on a person at any particular time and are by no means distinct. Rather, they overlap and continually influence one's level of activation.

Fiske and Maddi characterized the sources of stimulation as being:

1. Exteroceptive which includes stimulation to one's eyes, skin, nose, ears and so on. This stimulation involves the excitation of organs which are sensitive to happenings in the external world. For example, a fractured ankle would be a strong source of stimulation.

2. Interoceptive stimuli which include stimulation to

organs which are sensitive to changes in one's internal milieu, such as the heart, blood, and lungs. An example is an increased pulse rate due to being excited before an important game.

3. Cortical stimulation which involves direct excitation from the cortex and reticular formation of the brain. This source of stimulation results from thinking, feeling, perceiving, or imagining things.

In summary the actual level of activation which exists at a given time is a result of the total impact of all the types of stimulation acting on one at that time. This impact may come into direct confrontation with one's customary level of activation and therefore two kinds of deviations are possible. If one's actual level of activation at a given moment is higher than the individual's customary level he pursues impact-decreasing behavior to bring down the level of cortical activity and make the two more congruent. If there is a discrepancy in the opposite direction and one's activation level is lower than usual, he will engage in impact-increasing behavior in an attempt to increase the stimulation so that it is at a level which is more comfortable for him (Alderman, 1974, 1974a).

The theory of Fiske and Maddi is homeostatic in nature. In other words, when a deviation occurs between the actual and customary levels of activation "... there is an attempt, which gets stronger the greater the deviation, to return to

the norm" (Maddi, 1968: 139). The ideal state is a complete absence of discrepancy between the actual and customary levels, however, this paper is primarily concerned with differences which result in impact-increasing behaviors.

Hyper-active children, or individuals with high customary levels of activation are examples of persons who often exhibit this class of behavior. They are seekers of stress because stress is attractive to them, especially when they are uncomfortable with the level of activation which exists in their daily routine experiences.

Quest for Excitement

Elias and Dunning (1970) suggested that, over the years, societies have become more advanced industrially and, as a consequence, there is only a rare occasion where strong excitement and exhilaration can be openly expressed. They noted that within these societies, many of the elementary crisis situations which mankind faces including famines, floods, infectious diseases and violence, have been brought under greater control and as a result, man's passions are also under stricter controls. Today, seriously excited people are likely to be taken to a hospital or to a prison. Due to these social and personal controls man is in quest of excitement and voluntarily seeks it. Elias and Dunning (1970: 35) identified this excitement as being a different kind.

> It is less reflective, less dependent on foresight, knowledge and on the ability to free oneself for a short while from the oppressive burden of suffering and danger which surrounds us.

They further suggested that, in contrast to excitement involving crisis, this excitement is always pleasurable and is socially acceptable, within limits. This stress is a result of being actively involved - whether as a participant or spectator. This excitement is pleasurable but is accompanied by a necessary degree of anxiety, fear or stress (Harris, 1972). Elias and Dunning noted these experiences increase or produce tension and stress as opposed to reducing it and further mentioned this stress and excitement is enjoyable and necessary.

Some individuals seem to be addicted to, or have a recurrent need for, these stressful, but pleasurable, experiences. If the individual perceives these feelings as satisfying once they are elicited, then he will continue to "stir them up" again and again as long as he feels the need to experience this enjoyable stress (Harris, 1972, 1973).

In many of today's societies, emotional discipline or self-control, especially in the male, is expected and required and there are only rare opportunities where one is able to openly express strong pleasurable feelings. Since these feelings must be inhibited to a great extent, on the one hand one's self-control is enhanced, but on the other, this may be detrimental to good mental health. Elias and Dunning felt these powerful and passionate outbursts were muffled by various built-in restraints which are maintained by social controls and are so deeply ingrained they are impossible to shake off. They further reported

that in our society and other well-ordered societies such as ours, routinism captures all spheres of life, including the sphere of greatest intimacy. As a result of increased specialization, most occupations now have a certain degree of boredom associated with them, although there still remain some individuals who are not bored by "monotonous" occupations (Elias and Dunning, 1970).

Similar feelings were expressed by Selye (1969) when he suggested our society forces individuals into occupations which are highly specialized and that may become monotonous. Creation of dys-stress is nature's only way to force one out of the rut he gets into when he is forced to use the same parts of his brain or body over and over. For many, life is routine, nothing new ever happens in their occupations or in their private lives. Consequently, they may engage in various forms of sport or physical activity in an attempt to feel the upsurge of strong pleasurable feelings which are an essential ingredient of mental health (Elias and Dunning, 1970). Thus, the authors suggested that participating in sporting events is just one example of socially acceptable avenues open to individuals who have gotten "in a rut" in life and need occasions to experience and express this stress. Individuals who are spared the stress in life find or create opportunities, whether socially acceptable or unacceptable, which will fulfil this need.

Frank Trippett (1969:33) presented a report entitled "the ordeal of fun" which was a special documentary on the

way people play. He suggested that life is disequilibrium and the essence of entering life is disequilibrium. He noted that infants have this disequilibrium feeling but soon discover they must inhibit much of this joy if they are to survive in society (Harris, 1972). Youngsters and old people alike seek to recapture the disequilibrium they experienced as children through sky diving, surfing, bobsledding, cycling, soaring and in alcohol and drugs. An imbalance in the homeostatic mechanism is the epitome of childhood games and toys which are perennial favorites including the swing, the merry-go-round, the seesaw, the kite and the hoop. Trippett (1969) noted that the ball embodies disequilibrium perfectly and man has designed more games around the ball than any other object, including croquet, bowling, tennis, marbles and snooker.

Viewing play or physical activity in this manner is essentially what Caillios (1955) alluded to in his attempts to classify games. Ilinx or the pursuit of vertigo, is the nomenclature utilized by Caillios to describe the category of games in which disorder is desired. Persons "... deliberately attempt to destroy their bodily and perceptual equilibrium in order to gain a giddiness or convulsive shock that is pleasantly intoxicating to them" (Alderman, 1974: 69). Ferris wheels, teeter-totters and roller coasters are items which manifest this type of behavior.

Kenyon (1968) has developed a conceptual model which consists of six major domains of physical activity. One of

his subdomains is the pursuit of vertigo. Kenyon has broadened the scope of Caillios' classification and has added the dimension of danger, thrill and risk. By expanding in this manner, he has presented a rationale for explaining why some individuals mountain climb, drive race cars, sky dive or engage in similar activities. These are considered to be more sophisticated and dangerous and thus are an expansion of the "childhood" activities mentioned in the previous paragraph. Kenyon (1968) qualified his statements with respect to the pursuit of vertigo and indicated that although individuals may pursue vertigo in various activities, they do not necessarily achieve it.

Stimulus Struggle

In The Human Zoo, Desmond Morris (1969) analyzed the need to increase or decrease stimulation from yet another perspective. In "the stimulus struggle" Morris said it is possible for an organism to be understimulated as well as overstimulated but that the object is to obtain optimal stimulation from one's environment. He indicated that the problem for many people in today's society is one of being understimulated. Morris (1969) presented some principles which he feels govern this stimulus struggle, whether it be for a new born infant at play or an artist working on a masterpiece. If the stimuli one has been receiving are too weak, one seeks more stimulation in a variety of fashions in order to reach a balance.

Morris also discussed manners in which individuals can

substitute activities in this stimulus struggle. For example, a disillusioned youngster may throw a rock through a window rather than throwing a ball in a baseball game. He conjectured that sports and physical activity offer vast opportunities for more complex forms of expression in which the individual may become so absorbed that the experiences and rewards are endless (Morris, 1969). Morris advocated that exploration was a distinct and separate drive and the primary function of this drive was to familiarize oneself with an awareness of the environment and the relationship of his capacities to it. He also indicated that in all exploratory behaviors there is a continuous struggle between exploring the new and the unknown and remaining with the familiar. Most of Morris's postulations were hypothetical but nonetheless they do have obvious and direct relevance to sports and physical activity programs.

Competence or Effectance

R. W. White's (1959) theory of competence/effectance motivation is similar to that proposed by Morris. His theory takes into account repetitious and unstereotyped behavior that continues to be emitted after the novelty has gone (Ellis, 1973). He said that libido and drive reduction theories do not adequately explain the play and explorative behaviors of animals and children. White (1959) claimed behavior is motivated by a need to show one's capacity to produce effects in his environment. White felt such

behaviors are part of the general development of the infant by which he is attempting to establish a relationship or effective familiarity, between his environment and himself and as such are not motivated by visceral needs (White, 1959). The child tries out various tasks and if he meets the challenge, self-competence is gained and he proceeds to set further limits and tests himself to a greater capacity in an attempt to gain even more gratification.

White decided that the origin of this behavior was in the central nervous system and he maintained that reinforcement was associated with this demonstration of competence. A feeling of effectance was also connected (Ellis, 1973; Alderman, 1974). Thus, competence is gained as a result of interactions in one's environment motivated by effectance.

Conclusion

The preceding discussion has demonstrated rather clearly that there is no simple explanation as to why man participates in arousal-elevating activities. It is readily apparent that each individual has his own intrinsic motives for becoming involved and remaining involved. The expression and gratification of these motives are reflected in the manner in which the individual becomes involved in physical activity and sport. Further research is necessary if one is to isolate a plausible explanation and gain more understanding as to why some human beings are motivated to seek stress through sporting activities. An understanding of this phenomenon will aid physical educators and recreation

personnel in assisting individuals to better fulfil their lives through more meaningful involvement in their athletic pursuits.

IV. IMPLICATIONS OF EUSTRESS FOR SPORTS AND PHYSICAL ACTIVITY

Participation in stress-seeking activities is an individual thing and obviously individuals choose to become involved in such endeavors since they feel the goals they are seeking are worth the effort, that is, the payoff is justifiable to them (Alderman, 1974). What may be stressful to some may be rewarding to others. If, as Selye (1974) said, stress cannot be avoided, perhaps one of the functions of sport and physical activity may be to provide a few socially acceptable avenues to fulfil the eustress-seeking need. The realm of sports is but one area where stress-seekers perform and a number of relevant implications may, therefore, be made for sports and physical activity programs. A few are discussed below.

Traditionally, activity programs have been made as safe as possible for the participants due to the threat of legal liability suits and as a consequence the danger and excitement has been minimized. Harris (1973) contended that, in a sense, this has led to a type of sensory deprivation for the participants and they have no choice but to look elsewhere for their stimulation. Since physical activity programs are not fulfilling this need(s), she suggested that perhaps sex, drugs, alcohol and crime are a few of the substitute

activities to which individuals may turn in an attempt to satisfy this need. Harris (1970) further pointed out that the problem is not the suppression of this need but it is the channelling and providing of suitable alternatives for the expression of this need so that it does not eventuate in social destruction.

Additional implications for activity programs can also be drawn from Ryan's theory of augmenting and reducing sensory input. If the apparent need for various stimulants such as drugs and alcohol can be fulfilled in more socially desirable means, then such activity programs may have much to offer these individuals (Harris, 1973). This is especially relevant if the patterns of the augmenter or the reducer can be modified through physical activity.

A further relevancy is derived from viewing stress-seeking in Fiske and Maddi's terms which gives a basis for the better understanding of individuals who are low-active or hyper-active (Alderman, 1974a). Activation theorists now suggest that hyper-active persons are uncomfortable with their actual levels of activation and hence continually engage in behaviors which are impact-increasing. These individuals have high customary levels of activation and seek stress because it is attractive to them.

In addition, the possibility exists that these stress-seeking individuals welcome and actively seek the responsibility, pressures and tensions which are concomitant with being in the "spotlight" or being the "center of

attraction" (Alderman, 1974: 179). This explanation becomes even more plausible when one considers individuals who receive no financial rewards for their voluntary participation.

It also seems that sensory incentives and the amount of sensory stimulation play a role in determining man's behavior in general, and in specific his choice of sports activities. As with other incentives, the salience of this particular class of incentives is a highly individual matter. Knowledge of the importance of sensory incentives in athletics and sport is vital to athletes and coaches alike, for it will have great implications for the training regime of athletes - especially those searching for stimulation through sports. For example, practices must not become routine as satiation results from continuous exposure to the same stimuli. Therefore training schedules must provide such things as challenge, uncertainty and novelty for the stress-seeker or else he becomes disenchanted and eventually becomes a motivation problem.

Finally, Huberman (1969) and Harris (1970) echoed the same thoughts when they suggested that stress-seeking is a universal human trait and it seems every individual has an instinctive need to pit himself against obstacles or forces to determine what type of individual he really is under this stress. The response to a challenge and the mastery of it appears to be a potential source of meaning for participation in many sporting events.

Traditionally, stress was widely viewed as having negative connotations (Selye, 1956, 1969; Pichot, 1971; Levi, 1971; Wolff, 1969; Levine and Scotch, 1970; Oakeshott, 1973; Lazarus, 1971). The emphasis was directed to the avoidance, coping and management of stress (dys-stress). Selye (1956), Lazarus (1966, 1971), Levi (1967) and others viewed stress as essentially pathogenic. It was something to be minimized, if not totally avoided.

Others (Martens, 1971; Berlin, 1974; Bernard, 1968; Ellis, 1973; Harris, 1970, 1972, 1973) viewed stress as having negative but also positive attributes. Eustress is the term applied to these connotations and is an attempt to provide further understanding to an aspect of human behavior about which man has long been intrigued (Gerber et al., 1974). In the past decade, studies by Harris (1970, 1972, 1973), Selye (1974), Lazarus (1971), Berlin (1974), Martens (1971) and Levi (1967, 1971) propose that stress, psychological or physiological, is not necessarily unpleasant. This later contention is becoming increasingly popular, although little research has been carried out to document it. An important distinction which must be made is the difference between stress that is damaging to a system and that which is disturbing to a system. Any stress causes a disturbance, but this disturbance may be damaging or pleasant to the individual.

Assuming stress is a motivational factor in physical activity and sport, then individuals may be motivated to

participate by providing them with activities which are eustressful in nature. The task of the professional concerned with play, sport and leisure time experiences would then be to facilitate stress-seeking behaviors in a way that optimizes their current arousal level. The entire area of stress-seeking warrants additional scientific research primarily focused on how sporting and physical education programs can attempt to meet these social and psychological needs of mankind (Harris, 1970).

V. FACTORS AFFECTING STRESS-SEEKING

There are several factors which must be considered when one attempts to evaluate stress-seeking as a possible motivator to participation in sports and physical activity.

Human Physical Energy

Human beings have a tremendous source of physical energy that is consumed as they participate in their daily routine. Work is probably the greatest utilizer of this energy and stress-seeking (eustress) is just one of a number of alternative ways by which it can be expended. The net amount of energy accessible to, or that can be generated by, one who wishes to pursue this stress process ultimately determines how often the individual will seek out this particular type of activity (Harris, 1972, 1973). Thus, as a result of the principle of individual differences, it becomes evident that there is a huge variance among individuals with respect to this physical energy factor.

It has been suggested by Klausner (1968) that as well

as being a consumer of energy, eustress may also be energy-mobilizing. Harris (1972) indicated energy may be unleashed for socially constructive behaviors but often there is a euphoric feeling as a result of one's stress-seeking activities and the participant often feels he could do anything.

Age

A second major factor which ultimately determines how often and/or how intensely one seeks stress is that of age (Bernard, 1968). On the average young people are far more active than older people and generally younger people have more energy than is required for their regular activity cycle. In addition, youths are not always engaged in activities that are necessary to earn a living, so much of their energy supply is never tapped. In relation to this, the youths would have more time available for the pursuit of stress (Harris, 1972, 1973). Harris further theorized that the average age of participants in riots, brawls, street fights, gang wars, demonstrations and the like is relatively young and this may be partially explained by the energy resources at their disposal. This energy factor may also be a link to the relationship between the amount of physical activity in which one engages and age.

Experience

The number of times an individual has been exposed to stress-seeking situations or the amount of practice and experience he has in dealing with stress appears to be yet

another factor influencing eustress-seeking. After a series of studies on parachuters, Fenz and Epstein (1969) concluded that experience assisted one in expanding his range of anxiety cues as well as aiding him in developing anxiety defenses. The experienced parachute jumpers gradually learned to control their anxiety level. Novice jumpers either became overwhelmed by the anxiety or tried to completely discount it. Thus, experience assists in the development of proper defenses as well as helping one regulate his level of anxiety. Experience keeps him from being overcome but at the same time increases his perceptions of the inherent danger (Harris, 1972, 1973). In addition, Epstein's (1962) data clearly showed that with experience, threat is reduced primarily because one knows better what to expect. The stimulus has less potency for stress than it had originally.

Rosenthal (cited in Furlong, 1969) contended that only those persons who have learned to regulate their stress produced in such situations are able to experience the exhilaration and euphoria which comes as a result of their activity. The above literature seems to indicate that one never gets fully accustomed to this stress; as experience increases the individual simply learns to control this stress so that it is enjoyable to him and less damaging to his system.

Vicarious Stress-Seeking

Sports such as bull fighting, boxing and automobile

racing are believed to provide eustress to millions of spectators. The group stress-seeker satisfies his need for eustress either by being a member of a crowd or through symbolic identification with a larger society (Klausner, 1968). Support for the fact that large amounts of energy are generated as a result of vicarious eustress is obtained universally when one observes the difficulty referees, umpires and other officials have in attempting to prevent fights and riots from erupting during and following competitive sports events, rock music festivals and similar events (Harris, 1970, 1972, 1973).

The vicarious eustress referred to in the above paragraph is probably created as the spectators observe the bodily actions of the participants. Simulated stress-seeking may also be created by words, music, drama, symbols, or pictures. The obvious example which comes to mind is that of naive individuals who become so entangled and involved vicariously in stories or films involving suspense or threat to the hero. For some, this suspense and excitement may be so intense that it disrupts their sleep, while others who are able to tolerate this stress and excitement clamour for more (Harris, 1972, 1973). Many children's fairy tales and adult novels provide vicarious eustress for the listener or reader. As the story unfolds, the tension and suspense mount so that the eustressful state experienced by the viewer, reader or listener is almost identical to that involved in the actual situation. The euphoric

feeling of elation associated with these experiences is readily sought after and normally results in a desire to reproduce the feeling (Harris, 1973).

In conclusion, a review of the above mentioned factors clearly shows that stress-seeking does differ in relation to these variables. In addition the research indicates influences such as sex (Gerber et al., 1974; Le Masters, 1957; Bernard, 1968; Harris, 1972, 1973), social class (Bernard, 1968; Harris, 1972, 1973; Roberts and Sutton-Smith, 1966; Sutton-Smith et al., 1963) and family order (Lester, 1969; Radloff and Helmreich, 1969) determine how intensely one seeks stress.

This section has included a brief introduction to the neurological mechanisms of stress (arousal), a discussion of the various types of stress, and some of the many theories postulated in an attempt to explain stress-seeking behaviors. The discussion concluded with an introduction to some of the factors which affect stress-seeking. Only the factors relevant to this study were presented.

VI. EUSTRESS IN SPORTS

Introduction

It must be recognized that individuals will be motivated to participate in any particular activity for a variety of reasons. Man's reasons for doing anything are normally many and varied and of late, an increasing number of physical educators, philosophers, psychologists, and sociologists are beginning to examine man in sport in hope that they will be

able to better understand the motivating focus behind his participation and the meaning which it holds for him (Coutts, 1968). Kretchmar and Harper (1969) indicated that it is very difficult to find logical explanations as to why an individual plays or participates in sports and physical activity. They suggested that the cause-and-effect relationship between man and play can not be adequately explained through a rationalist's method and that "Man plays for many reasons, yet he plays for no reason at all" (Kretchmar and Harper, 1969: 58). Everyone who participates gains some satisfaction or meaning from sport or else would cease to participate (Gerber, 1967).

It has been suggested that stress-seeking is one of the potentialities for sports involvement, although it would be impossible to determine one primary factor which motivates people to become actively interested in stress-filled activities. There are, however, repetitive themes which run through the literature. Some factors are readily seen, while others are not easy to verbalize or conceptualize, yet are of equal importance. They may also be more difficult to isolate and examine. Stress-seeking through sports and physical activity is just one of these later factors.

What type of individual is prone to seek stress by testing himself against resistance generated from the environment or other individuals and why do they voluntarily choose competitive situations that can only provide even more stress? Stress-seekers find pleasure and excitement

in experiences and situations which most persons would consider to be fear-provoking (Harris, 1973). They find delight and pleasure in doing that which has never been done; to them, adventure is a way of life. Many observers feel these seekers of stress are foolish individuals who are unaware and unafraid of danger (Harris, 1973). Yet Balint (1959) hypothesized that those who voluntarily and intentionally expose themselves to tense, adventuresome and pressure situations are fully aware and afraid of the danger. Similarly, Harris (1973) theorized that the dangers involved in such feats and adventures are well calculated and therefore the participants adhere to carefully planned behaviors. When this is the case, they become sport. Progen (1972) and Alvarez (1972) supported this contention when they indicated control was the key factor separating the difficult from the dangerous.

Harris (1972) noted that, although there has only been a minimal amount of research done to date, it seemed to suggest that while the anxiety remains in stress-producing situations, the experienced stress-seekers, as a result of their experience and practice, have learned some means of anxiety control rather than inhibition. Harris (1973: 99) stated that "The ultimate goal of the stress-seekers is pleasure ...", whether it is after the feat or during the accomplishment. Therefore, they return time and again to situations where they may reproduce the euphoric feeling and exhilaration that are connected with their experiences.

They approach such fearful and often dangerous situations confident that they can be tolerated and mastered and after the danger passes, they are exhilarated with their experience as a result of mastery (Harris, 1972).

As yet, there seems to be no explanation for this stress-seeking phenomenon although, for some individuals, there appears to be very little doubt that sports and physical activity furnishes them with opportunity for obtaining or achieving higher states of excitement, stress, arousal and tension than those to which they are normally exposed (Alderman, 1974). The wild manner in which sport is pursued nowadays and its increasing significance in our society serve to indicate its attractiveness as a vehicle for achieving higher levels of activation than man is accustomed to in his daily routine (Alderman, 1974). In fact, it is believed (Alderman, 1974; Harris, 1972, 1973) that perhaps these persons virtually become addicted to such situations and are continually searching for, or returning to, situations that provide or induce these experiences.

Alderman (1974) suggested that for many youngsters, who are introduced to competitive sports at a very early age, excitement and stress associated with sport eventually become incorporated into their daily activity pattern.

Research with respect to stress-seeking as it specifically applies to sporting situations is very sparce, but nonetheless a few studies are worthy of mention at this time. All of these studies were concerned with stress, and

were conducted in a sporting environment. The most relevant findings in relation to this study are presented here.

In an extensive and comprehensive series of observations by Fenz and Epstein (1969), six studies, employing a variety of measuring techniques, were directed at intense anxiety (stress) and its mastery among parachuters. Initially, the investigators determined that they could locate the source of stress (i.e. the jump) in the individual and consequently conducted further research to measure its effect on each parachuter.

With the use of a word association test which was scaled for relevance to parachuting, the investigators concluded that "... anxiety serves a useful function by focusing the individual's attention on the danger area" (Fenz and Epstein, 1969: 28). This finding leads to an important principle, which is well documented: a small amount of anxiety is useful but too much is harmful. Consequently, the task for the individual is to regulate and control anxiety, rather than to eliminate it, when in very stressful situations.

In their next study, a test of thematic apperception was employed to investigate some of the defenses parachuters used against anxiety. Two types of defenses, namely "stimulus displacement" and "drive displacement" were noted and Fenz and Epstein (1969: 28) suggested that "... while such defenses may reduce stress, they exact a price from the user". That is, while the anxiety may be reduced, which

aids one in adjusting to anxiety-producing situations, they may also alter the parachuter's perspective and may produce inappropriate behaviors in other situations.

With the same instrument as in the previous study, Fenz and Epstein (1969: 58) tested experienced parachuters and reported that

> ... as the parachutist gains experience and effective control over his anxiety, the all-or-none system for inhibiting anxiety shifts to a more selective one that is applied earlier and to smaller magnitudes of anxiety.

The parachuters react to a more diverse range of cues and simultaneously learn to inhibit the anxiety corresponding to the cues.

In order to substantiate that this difference was not due to personality but was a result of experience, additional tests were conducted which confirmed their hypothesis that the experienced parachuter's anxiety peaked long before he jumped, while the novice parachuter's stress is greatest seconds before the actual jump. The contention that anxiety is not inhibited but rather disappears with increasing experience was rejected for several reasons. Since novice jumpers actively attempt to inhibit their anxiety, it seemed reasonable to assume that experienced parachuters were successful in doing what inexperienced ones were attempting to do. Secondly, since it has been established that some involuntary reactions to stress such as crying, voiding, and vomiting can be postponed, direct inhibition of anxiety does not have to occur. That is, it is possible that some

responses such as thoughts and images which may tend to increase anxiety reactions can be controlled so that stress reactions do not disrupt the immediate task. However, continuing stress and tension can be controlled only so long before toleration ceases and breakdowns occur.

In yet another study, the same researchers reported a highly general phenomenon, that of the practised parachuters expressing their maximum anxiety period considerably sooner than the inexperienced parachuters. Fenz and Epstein (1969) hypothesized that since experience is beneficial in extending the range of anxiety cues and because experience assists one to develop defenses for anxiety, the experienced parachuter becomes anxious sooner as well as learning to control his level of anxiety.

Epstein (1962) measured the level of skin conductance in experienced and novice parachuters, both before and after their jumps, to assess their physical stress reactions. As expected, it was found that basal conductance was uniformly higher before, compared to after, a jump. The parachuters were more tense before a jump and a euphoric feeling was experienced following a jump. A difference was also noted in activation, which changed as a function of experience. Most experienced parachuters had relatively moderate states of activation, both prior to and following a jump, while the inexperienced parachuters exhibited extremely high states of activation before a jump and extremely low activation states after a jump.

In summary, experience develops a good defense against anxiety and governs the level at which anxiety is encountered so that it is controlled, preventing the parachuter from being overwhelmed but not from increasing his sensitivity and awareness to the source of the existing threat.

Radloff and Helmreich (1969) conducted a study on aquanauts and reported that on an objective checklist, the underwater divers' self-rating of fear was highly related to his diving performance. Those aquanauts reflecting low levels of fear spent more time in the water than those indicating higher levels of fear. Also, the time the diver spent socializing and interacting with his mates, determined from objective records of television observations while in their habitat, was also strongly related to his diving performance; the most gregarious were also most successful in achieving a maximum of diving time.

Rogin (1965) suggested, with respect to why people participate in surfing, that man needs an outlet which is ego-gratifying. Riding the big waves gives one a feeling of accomplishment and an experience of freedom. Each wave is difficult and is a challenge (Ottum, 1966). In both surfing and scuba diving, part of the appeal is that the individuals are competing against nature and/or against themselves.

James T. Lester (1969), a psychologist who accompanied climbers on their challenge of Mt. Everest made a number of interesting observations as he studied personalities under stress in this remote and relatively hostile environment.

When the climbers were asked to relate the stress experienced in making the climb, in comparison to past stress experiences, it was found that five men who actually scaled the summit indicated they anticipated greater stress during the climb than they actually encountered. The five summiteers indicated that they experienced the greatest personal fulfilment over the course of the almost four month expedition. It was also noted by means of a retrospective self-evaluation scale that, on the average, they experienced less stress than they had previously encountered in other situations.

Also related to mountain climbing, Houston (1968) distinguished between risk and danger. He said experienced climbers understand, enjoy and pursue risky situations because this risk presents a difficulty which can be estimated and controlled. Danger is abhorred since it is beyond the climbers' control. To make mountain climbing more of an adventure and challenge, Houston (1968) indicated that some climbers now deliberately make their ascents at night, in the winter or in bad weather.

Hockey

To date, there is a voluminous amount of information on why individuals participate in sports and physical activity. There is also an abundance of research and literature on ice hockey in general, but there has been only a minimal number of studies relating to why a person chooses to play the precarious position of goaltender in ice hockey.

Alderman and Wood (1976) conducted a study on young Canadian ice hockey players in an attempt to examine what types of outcomes or consequences an individual is seeking from his or her participation in sport. Their instrument for this project was based on the seven major incentive systems proposed by Birch and Veroff (1966), although these systems were slightly modified so as to be more relevant to athletic motivation. One of these modifications is of particular interest for this present study. Birch and Veroff's "sensory" and "curiosity" systems were amalgamated into what was termed an "arousal" incentive system. This system was characterized by "... incentives existing in sport that revolve around opportunities for excitement, stress, and interesting experiences" (Alderman and Wood, 1976).

After testing 425 ice hockey players between the ages of eleven and fourteen years, they found that the arousal system tended to be the third most salient of the seven systems. Affiliation and excellence were the strongest incentive systems. No analysis was made with respect to position (i.e. forwards, defense, goaltenders). Upon assessing their results, the authors further modified their instrument for future studies. They felt the arousal system was much too broad a construct to assess properly and consequently relabelled "... the arousal system as the 'stress' incentive system" (Alderman and Wood, 1976).

Goaltenders

Goaltending is perhaps the one position in competitive team sports which requires the most courage. Words such as "dumb", "crazy", "stupid" and "insane" are often used to describe goaltenders. The goaltenders' equipment has been referred to as the "tools of ignorance", or the "implements of insanity" (Gitler, 1974: 211) and he has often been considered a "knight in polyurethane padding" (Taubman, 1975: 42). Injuries are a part of the game of hockey no matter which position one plays, and even with the forty pounds of padding the goaltender is not completely protected from potentially lethal blows such as slapshots, deflections and screens. The half-moon curved sticks make the puck spin, dip and dive similar to baseball's knuckleball. These blows often result in a numbness the goaltender feels for days, particularly if he is struck in an unprotected area. Taubman (1975: 42) further described the position of the goaltender as a "vortex of violence" and that he seems to be a magnet to the action with all the masses whirling around and being drawn toward him.

In 1959, Jacques Plante, then of the Montreal Canadiens, was the first modern day goaltender to introduce the face mask (O'Brien, 1972, 1973; Hunt, 1967). Initially, the mask was reluctantly accepted by a few goaltenders and it took many serious injuries to make the mask the common piece of equipment it is today. It was felt that wearing a mask would lessen the risk of injury when diving for a pass or shot, or

becoming involved in a goal-mouth scramble. Many other players, coaches and fans had mixed feelings about the mask, feeling that it would obscure the goalie's vision, especially when the puck was at his feet. Others felt that wearing a mask indicated a lack of courage (Frayne, 1974). Plante (cited in Hunt, 1967) suggested the opposite when he indicated he was more daring when wearing a mask and was more willing to dive into a pile-up in the crease. He no longer had to worry about facial cuts and could now bear down on being a better goaltender. Today, all goaltenders have adopted the mask which is "... the best insurance against losing their heads" (Hicks, 1976: 24).

Even with the many pounds of protective equipment and the face mask, the goaltender is like a clay pigeon (Hunt, 1967). He occupies a perilous position since he is the focal point of the action in the game (Fisher and Schoen, 1972).

Trent Frayne (1974) interviewed several professional goaltenders and reported them to be the most vulnerable men in the game - both physically and emotionally. He suggested most goaltenders experience a type of stress which is unique in sports. The average goaltender fills a space of approximately eight square feet and must protect an area of twenty four square feet (six feet by four feet) by whatever means possible (Taubman, 1975). Therefore, the goaltender is faced with constant pressure and tension throughout the game, even when he has the help and support of his five teammates

(Gitler, 1974).

Lloyd Percival (cited in Frayne, 1974), former director of a national research organization called Sports College and an internationally recognized authority on the stresses and strains concomitant to various sports, indicated that in the twelve hours leading to a play-off game, professional goaltenders carry a tension load the average citizen would endure only a couple of times in a lifetime. Examples of such tension would be a patient before a major operation, or a person in an interview for a position which is vital to him (Taubman, 1975).

There is, therefore, a mental strain or anticipatory tension, whether real or imagined, as the individual prepares himself for the game as well as the actual stress during the game itself. The very nature of the position they have chosen prevents them from giving free reins to their emotions. The forwards and defensemen may temporarily rid their stresses by knocking or checking opposing players, while goaltenders stand in the goal area and try to think about, and concentrate on, what is happening (Frayne, 1974).

The one all-time great goaltender who was probably most tormented by his job was Glenn Hall. Probably no one hated the game with quite the passion as Hall. He was quoted as saying he came to fear and hate his work and that each game was "an hour or so of hell" (Kahn, 1968: 86). He talked freely of how he detested playing goal and it was not uncommon for him to vomit prior to the game (Eskenazi, 1972).

What, one may ask, would ever persuade an individual to become a goaltender? Or, having become one and having experienced first-hand what it is like, what would keep him returning for more? Some basic attraction must exist for individuals to put themselves, voluntarily, into such situations. Prestige, recognition and financial remuneration (especially for amateur athletes) are simply not enough to explain why these individuals expose themselves to such situations (Alderman, 1974).

Fisher and Schoen (1972: 374) administered a questionnaire to collegiate and professional goaltenders in an effort

> ... to determine why these individuals become goalies and remained as such and to attempt to assess their feelings toward the dangers of the goaltender's position in ice hockey.

Their subjective analysis of the responses on this questionnaire revealed that some of the reasons why they initially become goaltenders included "... opportunity to play hockey when indeed they possessed poor hockey skills, family pressure, and hero worship" (Fisher and Schoen, 1972: 377). Their responses also revealed that some of the reasons why they continue to play the sport were that it provides opportunities for "... scholarships for higher education, and increased earnings and the corresponding life style they provide" (Fisher and Schoen, 1972: 377). Another response, and one which is of particular significance for this study, is that they participated for the challenge and excitement the goaltender's position provides. Similarly, Jim Hunt (1967), in his book on professional ice hockey

goaltenders, concluded that the primary reason they played was because of the challenge.

Atkinson (1957) has noted that risk-taking behavior is also connected to achievement motivation. Persons who are high in achievement motivation seek out, perform and persist in activities which offer substantial degrees of risk to that person (Levy, 1972). An individual striving for success would engage in challenging activities when the goals were within his reach. In such activities, the outcome is contingent upon the successful execution of the skill rather than on fate, luck or chance. Goaltenders could be considered success-driven, since they are normally rated high in achievement motivation and have a tremendous fear of losing (Elson, 1975).

Guts and goaltenders have always gone together. Danger seems to be their way of life. For years before the goal mask was introduced and, to a lesser degree, since it has become common place, scars, sprains and strains have always been the goaltender's trademarks. Physical pain was always endemic to this particular position. Such were normally viewed as the occupational hazards of this nerve-wracking job. Today, goaltenders in general have adopted a style of play that is even more challenging and risky; that of roving and wandering.

Goaltenders such as Roger Crozier, Glenn Hall, Frank McCool and Georges Vezina have been accused of being neurotic, of being hypochondriacs, and of suffering from

persecution complexes (Hunt, 1967). They suffered from mental anguish and nervous conditions such as stomach problems and ulcers, and were generally considered to be "high strung" individuals. It appears, therefore, that these individuals were tormented by the stress associated with this involvement in the game of hockey. These may be viewed as the exceptions, where the stress of their jobs, their source of livelihood, seemed to get the best of them. Countless others, at the professional but especially at the amateur level, seem to strive on these stress-filled situations, since financial reward can not be considered as a motivator.

CHAPTER III

METHODS AND PROCEDURES

I. SUBJECTS

The subjects for this study were 118 male ice hockey goaltenders. Initially, four different groups of goaltenders were selected according to various levels of competition. The midget goaltenders competed in a midget "AA" league in Edmonton and this sample consisted of twenty-three subjects. Fourteen subjects were included in the senior category, all of whom were registered in the Edmonton Central Hockey League, a senior league comprised of teams from small towns in the Edmonton area. Fifty-three goaltenders comprised the third sample group which included goaltenders who were members of various university hockey teams in the Canadian Intercollegiate Athletic Union (C.I.A.U.). The final twenty-eight respondents were professional goaltenders from both the National Hockey League and the World Hockey Association.

II. THE INSTRUMENT

After reviewing related literature and research, four characteristics were isolated as being distinguishing features of a stress-seeker. A specific definition of a stress-seeker was not found in the literature, but, from the review of the relevant writings a number of consistent themes were noted. These were taken to be characteristics which typified a stress-seeking individual. A thorough

search of available research instruments was undertaken and as none were found to be adequate for this study, an instrument was designed by the investigator.

In constructing the questionnaire several steps were followed. An initial eight questions were designed to obtain general background information about the respondents. These included questions on age, experience and the level of competition of the goaltenders. Also, a preliminary draft of one hundred and thirty statements, thought to tap the stress-seeking incentive, was compiled from existing instruments which had previously been used for assessing personality, feelings, attitudes and interests. Most of the questions were worded to indicate the characteristics of a stress-seeker while a few described the characteristics of a stress-avoider. The original draft was subsequently revised to eliminate duplication and sixty-three items were maintained and placed in a questionnaire. Thirty of these statements related to stress-seeking or stress-avoiding experiences in everyday life situations and thirty-three related to stresses in goaltending situations.

These sixty-three statements were utilized in a pilot study involving twenty-five goaltenders who were representative of the final sample but not included in the major project. As a result of the pilot study, the items were tested for ambiguity of terminology and structure, and for the general structuring and placement of the items within the questionnaire. Certain questions were eliminated,

while others were rewritten to improve their comprehensibility. It was considered that the final questionnaire should be shortened for ease of answering and that the questionnaire should be validated.

For the purposes of constructing the questionnaire and validating the statements, the investigator described the stress-seeker as one who was: 1) a risk-taker, 2) a challenge-seeker, 3) a self-confident person, and 4) a pain-tolerant person.

1. A Risk-taker: - likes physically risky and daring situations which are too fear provoking for most others.
   - considers the risk involved in these situations to be calculable and controllable.
   - voluntarily, intentionally and deliberately chooses to participate in risk-taking acts.

2. A Challenge-seeker:
   - both anticipates and finds excitement and enjoyment in challenging and adventure-some experiences.
   - experiences exhilaration and a euphoric feeling during or after participation in the activity.

3. A Self-confident person:
   - feels confident and capable of performing well in most situations.

- is confident in his own abilities.
- has a feeling of competence in challenging situations.

4. A Pain-tolerant person:

- has a willingness to withstand, endure or tolerate pain.
- is often arrogant or contemptuous of pain.

Judgment as to the face validity of the statements was made by a panel of nine people, considered authorities in this field. It consisted of a goaltender, two hockey coaches and six psychologists, half of whom were sport psychologists. Decisions by the panel of judges were arrived at on the basis of the apparent face validity of each statement and its relevance for tapping the stress-seeking motive. Each member of the panel was presented with the list of sixty-three items and the description of the four stress-seeking characteristics. For each statement they were asked to indicate which of the four characteristics was most accurately being tapped by a given statement. If six of the nine judges agreed that a particular statement was tapping the same stress-seeking characteristic, that statement was accepted as valid and thus became part of the final questionnaire. The final questionnaire consisted of thirty-six items, eighteen in the general life section and eighteen in the goaltending section. The order of the questions in each section was randomly assigned.

In the final questionnaire the four characteristics were distributed throughout. For the questions related to general life situations, statements 3, 9, 13, 17 and 18 were related to the risk characteristic; 1, 4, 7, 10, 12 and 15 were dealing with challenge-seeking; 2, 5, 11, 14 and 16 were thought to tap self-confidence, and items 6 and 8 were the statements directed toward the pain-tolerance characteristic. With respect to the questions related to hockey experiences, 3, 6, 9, 11 and 15 were risk-taking statements; 2, 5, 8, 12, 16 and 18 dealt with challenge-seeking; 1, 4, 10, 14 and 17 were self-confidence items and the pain-tolerance statements were numbered 7 and 13. The questionnaire can be found in Appendix A.

For each item in this questionnaire the subjects were asked to respond on the basis of four choices: namely, 1) highly agree, 2) agree, 3) disagree, and 4) highly disagree. Instructions for completing the questionnaire emphasized that the subject respond in the way he felt and to choose the response which best represented his thoughts and/or feelings at that time.

III. COLLECTION OF THE DATA

The questionnaire method of gathering data was utilized in this study. After the initial groups for the study were selected, an introductory letter and the questionnaire were sent to each subject. For both the midget and senior groups, a telephone call was also placed to the prospective respondents in order to see if they would be willing to

cooperate in the study. All persons contacted agreed to assist with this research project. The names of all the university goaltenders were unavailable, so three questionnaires and an introductory letter were mailed to the coach of each of the thirty-seven university teams in the C.I.A.U. The letter briefly explained the project and asked the coach to forward the questionnaires to the goaltenders on his team. The coach was also requested to return, in a stamped, self-addressed envelope, the name and address of each person to whom he distributed the questionnaire. With the professional group, the names of the goaltenders were readily available, but their home addresses were not. Consequently, the questionnaires were, once again, sent to the coach of the respective teams. In the introductory letter he was asked to subsequently pass on the questionnaires to the goaltenders on his team.

All the questionnaires to goaltenders in Canada were accompanied by a stamped, self-addressed envelope. Questionnaires sent to professional goaltenders on teams in the United States were accompanied by self-addressed envelopes.

One hundred and eighteen of the possible 203 (58 percent) questionnaires were returned. When broken into their respective groups, 96 percent of the midget goaltenders, 82 percent of the senior goaltenders, 65 percent of the university goaltenders and only 35 percent of the professional goaltenders returned the completed questionnaires.

IV. SCORING

The majority of the items in the general life section were worded in such a manner that they were scored according to the following system. One point was given for a highly disagree response, two for disagree, three for agree and four for highly agree. Items 2, 6, 9, 12, 14 and 17 were worded in a form that required the reverse scoring procedure. Four points were recorded for highly disagree, three for disagree, two for agree and one for highly agree.

For the statements related specifically to goaltending experiences, all items except numbers 4 and 14 were scored in the following manner: one for highly disagree, two for disagree, three for agree and four for highly agree. Items 4 and 14 were scored in reverse to the abovementioned method. The range of possible scores was from 36 (very low stress-seeking) to 144 (very high stress-seeking).

V. ANALYSIS OF THE DATA

The data from the first section of the questionnaire which pertained to general background information on the respondents was answered directly on the questionnaire. Descriptive statistics of this information can be found in the next chapter.

Responses for the general life and hockey experience sections were placed on an IBM 1230 optical scorer answer sheet which was designed to suit this questionnaire. As an intermediate step, the optical score sheets were key-punched since the computer was unable to interface directly

with the optical score sheets. The analysis of this data included a oneway analysis of variance for age, experience and level of competition variables. The same was also used to analyze differences between the amateur and the professional groups. A t-test and a Pearson Correlation Coefficient were computed to analyze the total response on the general life questions compared to the total on the hockey questions. The data was analyzed for significant differences between means with the level of significance chosen at five (.05) percent.

The calculations were performed by the computer AMDAHL-470 at the University of Alberta Computing Services Department using the Statistical Package for the Social Services (SPSS) - version 6.02 program.

This chapter has provided an explanation of the steps involved in the construction and design of the questionnaire. As well, the method of collecting the data, the scoring system used and the procedure for analyzing the data were also included. The next chapter is an explanation of how the instrument was utilized in this project.

CHAPTER IV

RESULTS AND DISCUSSION

I. INTRODUCTION

The purpose of this study was to determine if goaltenders participate in ice hockey due to the stress it generates and the challenge it provides. The sample selected consisted of 118 male ice hockey goaltenders. This chapter presents the results and a discussion of the analysis of the data obtained from the questionnaire.

An analysis of variance was used to examine differences within the sample due to the variables of age, experience, level of competition and status (amateur - professional). A t-test (two-tailed) was used to compare differences between the subjects' responses on the general life statements and their responses on the goaltending statements. A Pearson correlation coefficient was also computed for the total scores in these two situations. For hypotheses A to D, an analysis of variance was computed, and the Cochrans C and Bartlett-Box F tests for homogeneity of variance were used to determine whether the groups in question were comparable (Winer, 1971). This procedure revealed that differences between the groups were non-significant and as a consequence scores could be pooled. In addition, the Duncan procedure, a multiple range test, was applied to the mean scores in each of the groups for all these hypotheses. This simple test identifies specifically which means differ significantly from each other (Winer, 1971). The five

hypotheses examined in this study were stated in the null form. Differences that reached the five percent (.05) level were considered to be significant. The discussion was divided into seven sections. In the first section, descriptive statistics on the background information of the subjects was presented along with a discussion of the findings. Then, results related to each of the five hypotheses were presented and discussed. The final section was devoted to a discussion of the methodology used in the study.

II. BACKGROUND INFORMATION

The following results on the personal characteristics of the respondents were formulated on the basis of the returned questionnaires. The breakdown according to age is depicted in Table I. Using the midget goaltenders and the under seventeen years of age column as an example, the interpretation of the results is as follows. There were twenty-three midget goaltenders who were under seventeen years of age representing 95.8 percent of the total sample for that particular age group. It also corresponds to 19.5 percent of the total sample of all goaltenders.

On the basis of experience, the goaltenders were grouped according to five divisions which are illustrated in Table II. Using the midget goaltenders and the less than five years experience column for illustrative purposes, the table indicates that three of the midget goaltenders had less than five years of goaltending experience. This score

TABLE I

AGE OF RESPONDENTS

	GROUP					
	<17 Years	18-23 Years	24-29 Years	30-34 Years	>35 Years	Total
Midget (N = 23)	23	0	0	0	0	23
% of Column	95.8	0.0	0.0	0.0	0.0	
% of Total	19.5	0.0	0.0	0.0	0.0	19.5
Senior (N = 14)	0	7	4	3	0	14
% of Column	0.0	11.2	17.3	60.0	0.0	
% of Total	0.0	5.9	3.4	2.5	0.0	11.9
University (N = 53)	1	45	7	0	0	53
% of Column	4.1	72.5	30.4	0.0	0.0	
% of Total	0.8	38.1	5.9	0.0	0.0	44.9
Professional (N = 28)	0	10	12	2	4	28
% of Column	0.0	16.1	52.1	40.0	100.0	
% of Total	0.0	8.5	10.2	1.7	3.4	23.5
Total (N = 118)	24	62	23	5	4	118
% of Total	20.3	52.5	19.5	4.2	3.4	100.0

TABLE II

SEASONS EXPERIENCE OF RESPONDENTS

	EXPERIENCE					
	<5 Years	5-10 Years	10-15 Years	15-20 Years	>20 Years	Total
Midget (N = 23)	3	20	0	0	0	23
% of Column	100.0	32.7	0.0	0.0	0.0	
% of Total	2.5	17.0	0.0	0.0	0.0	19.5
Senior (N = 14)	0	3	4	6	1	14
% of Column	0.0	4.9	18.1	24.0	14.2	
% of Total	0.0	2.5	3.4	5.1	0.8	11.9
University (N = 53)	0	35	10	8	0	53
% of Column	0.0	57.3	45.4	32.0	0.0	
% of Total	0.0	29.7	8.5	6.8	0.0	44.9
Professional (N = 28)	0	3	8	11	6	28
% of Column	0.0	4.9	36.3	44.0	85.7	
% of Total	0.0	2.5	6.8	9.3	5.1	23.7
Total (N = 118)	3	61	22	25	7	118
% of Total	2.5	51.7	18.6	21.2	5.9	100.0

corresponds to 100 percent of the total number of goaltenders for that experience subgroup and to approximately 2.5 percent of the total sample.

When the goaltenders were grouped according to the level of competition, the following percentages were noted: midgets (N = 23) accounted for 19.5 percent of the total, seniors (N = 14) 11.9 percent, university goaltenders (N = 53) 44.9 percent and professionals (N = 28) made up the remaining 23.7 percent of the sample.

All goaltenders were also asked why they initially decided to become goaltenders. Five possible choices were presented, but since these were not exhaustive, the subjects were allowed to elaborate as to their own reasons, if one, or a combination of the alternatives presented, did not suffice. The subjects' reasons for becoming goaltenders are reported in Table III. The total indicated for the F column (N = 14) includes three respondents who chose a combination of choices A to E. For simplicity of presentation these were grouped with respondents indicating the F choice. For those subjects who opted for response F, a wide variety of reasons were presented as to why they became goaltenders. The most prevalent included: 1) the other goaltender was inadequate, 2) the regular goaltender got hurt, and 3) the coach talked me into playing. Over one-half (55.1 percent) of the goaltenders indicated that they initially played goal simply because they wanted to.

TABLE III

BASIS OF ORIGINAL CHOICE OR ASSIGNMENT TO GOALTENDING

	RESPONSE						
	A	B	C	D	E	F	Total
Midget (N = 23)	1	1	15	2	3	1	23
% of Column	9.1	100.0	23.1	12.5	27.2	7.1	
% of Total	0.8	0.8	12.7	1.7	2.5	0.8	19.5
Senior (N = 14)	2	0	8	2	1	1	14
% of Column	18.2	0.0	12.3	12.5	9.1	7.1	
% of Total	1.7	0.0	6.8	1.7	0.8	0.8	11.9
University (N = 53)	6	0	29	9	4	5	53
% of Column	54.5	0.0	44.6	56.2	36.0	35.7	
% of Total	5.1	0.0	24.6	7.6	3.4	4.3	44.9
Professional (N = 28)	2	0	13	3	3	7	28
% of Column	18.7	0.0	20.0	18.7	27.2	50.0	
% of Total	1.7	0.0	11.0	2.5	2.5	5.9	23.7
Total (N = 118)	11	1	65	16	11	14	118
% of Total	9.3	0.8	55.1	13.6	9.3	11.9	100.0

All goaltenders were asked to indicate why they continued to be goaltenders. In this question, the amateur players (midget, senior and university) were presented with six possible alternatives from which to choose while the professionals were given a choice of three alternatives. In both cases they were also free to include new or different reasons for continuing to play if those listed were not

adequate to suit their situation. Tables IV and V show the results. For the amateur group, 55.6 percent suggested that they continued to be goaltenders for the challenge and excitement the position provided.

TABLE IV

AMATEURS' RESPONSES FOR CONTINUING TO BE GOALTENDERS

	RESPONSE						
	A	B	C	D	E	F	Total
Midget (N = 23)	2	10	0	1	6	4	23
% of Column	22.0	20.0	0.0	14.3	50.0	33.3	
% of Total	2.2	11.1	0.0	1.1	6.7	4.4	25.6
Senior (N = 14)	2	9	0	0	1	2	14
% of Column	22.0	18.0	0.0	0.0	8.5	16.7	
% of Total	2.2	10.0	0.0	0.0	1.1	2.2	15.6
University (N = 53)	5	31	0	6	5	6	53
% of Column	55.6	62.0	0.0	85.7	41.7	50.0	
% of Total	5.6	34.4	0.0	6.7	5.6	6.7	58.8
Total (N = 90)	9	50	0	7	12	12	90
% of Total	10.0	55.6	0.0	7.8	13.3	13.3	100.0

The professional sample was comprised of twenty-eight subjects, 35.7 percent of whom indicated they continued to be goaltenders because it provided opportunities now, or possibilities in the future for increased earnings. Just less than one-fifth (17.9 percent) said they continued to

play due to the challenge and excitement of the position. Of the 46.4 percent who chose response C, more than one-half (53.9 percent) indicated that they continued to play for a combination of the money and challenge.

TABLE V

PROFESSIONALS' RESPONSES FOR CONTINUING TO BE GOALTENDERS

	RESPONSE			
	A	B	C	Total
Total Number of Responses	10	5	13	28
% of Total	35.7	17.9	46.4	100.0

III. RESULTS PERTAINING TO THE HYPOTHESES TESTED

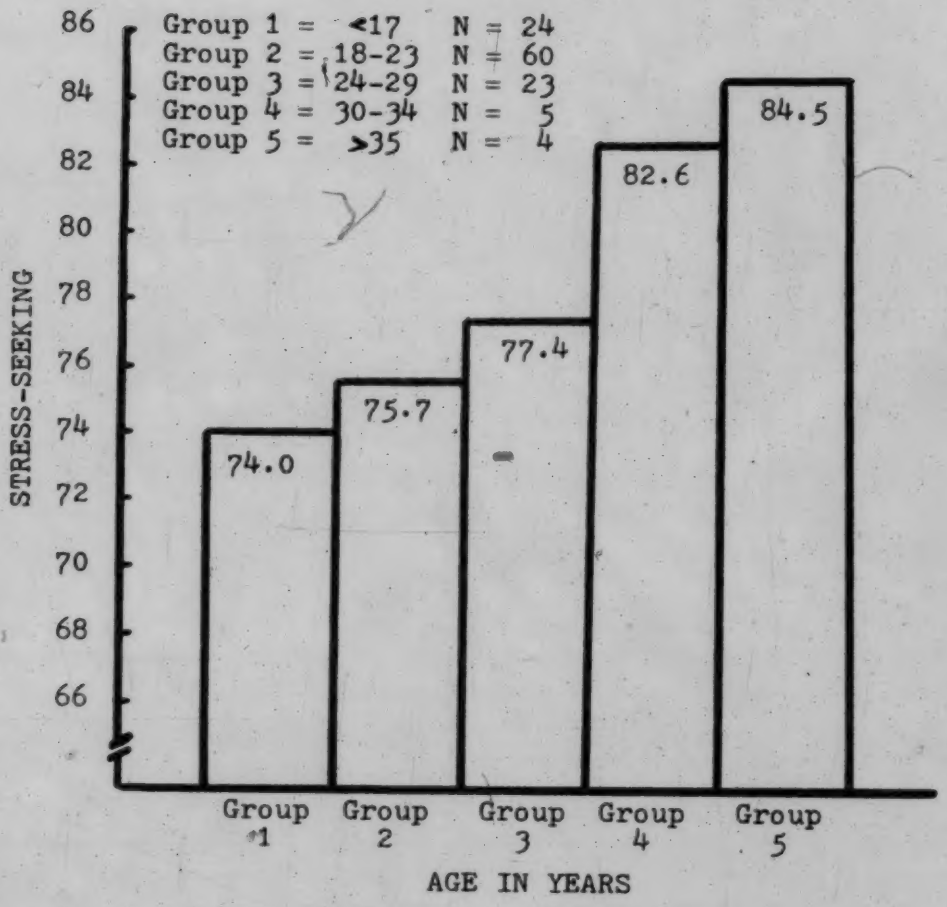
Hypothesis A: No differences in stress-seeking tendencies will exist between goaltenders in the various age groups.

The results of the analysis with respect to age indicated the acceptance of the null hypothesis. No significant differences were noted for age at the five (.05) percent level, but an important difference which approached significance ($P = .091$) was observed. This difference can be seen by examining Figure 1.

When the means for the five subgroups were compared, no significant differences were evident, but as the age of subjects increased, so did their raw score on the stress-seeking questionnaire.

Figure 1

STRESS-SEEKING AND AGE*



*N = 116 due to missing data on two questionnaires

Figure 1 indicates that as age increased, a gradual increase in stress-seeking tendencies also occurred. It is possible that if the subjects in subgroup five (>35 years of age) were introduced to the questionnaire at a younger age, less than seventeen for example, they would have also scored high on the questionnaire. These findings are not consistent with Bernard (1968) or Harris (1972, 1973) who theorized

that younger people were more stress-seeking than older individuals. Since all the subjects in this later group were professionals, it can not be assumed that the observed effect was due to the increase in age.

Hypothesis B: No differences in stress-seeking tendencies will exist between goaltenders with various amounts of experience in goaltending.

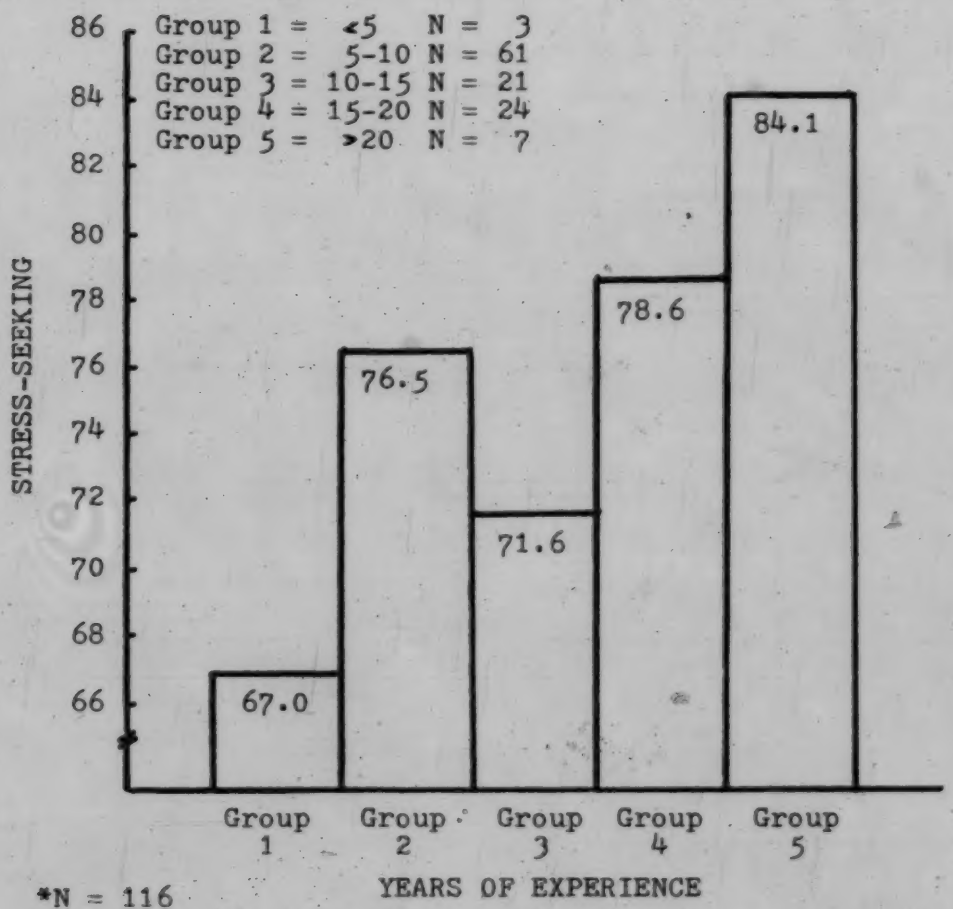
When analyzed according to the amount of goaltending experience, a significant difference at the .05 level was noted between the five subgroups of subjects. This finding refutes the null hypothesis. In terms of stress-seeking tendencies, as experience increased, so did one's score on the stress statements. However, this increase was not continuous, as the mean for goaltenders with 10 to 15 years experience was slightly lower than the mean score for goaltenders with only 5 to 10 years experience. At the .05 level, subgroups one (<5 years experience), two (5 to 10 years) and three (10 to 15 years) were shown to be the same statistically, yet different from subgroups four and five. Also, subgroups two (5 to 10 years) and four (15 to 20 years) were statistically the same as were subgroups four (15 to 20 years) and five (>20 years). Figure 2 clearly shows the differences between subgroups.

A possible reason for the slight dip for subgroup three is that with 10 to 15 years of experience, the goaltender would be approximately 20 to 25 years of age and generally

would have come to the realization that he was not going to make the "big" leagues.

Figure 2

STRESS-SEEKING AND YEARS OF EXPERIENCE*



*N = 116

Approximately two-thirds (63.7 percent) of the goaltenders with this amount of experience were non-professionals. Major changes in one's life style corresponding to this age range could also influence his stress-seeking tendency. This finding is consistent with those of Fenz and Epstein (1969) who indicated that, with parachuters, as experience

increased, the individual learned to control the stress so that it was more enjoyable. The findings of this study suggested that one's score for stress-seeking increased as experience increased. Festinger's (1962) concept of cognitive dissonance might be applicable here. It would be especially useful for professionals to reduce dissonance associated with high stress situations by identifying stress in some positive way.

Hypothesis C: No difference in stress-seeking tendencies will be evident between goaltenders in the various levels of competition.

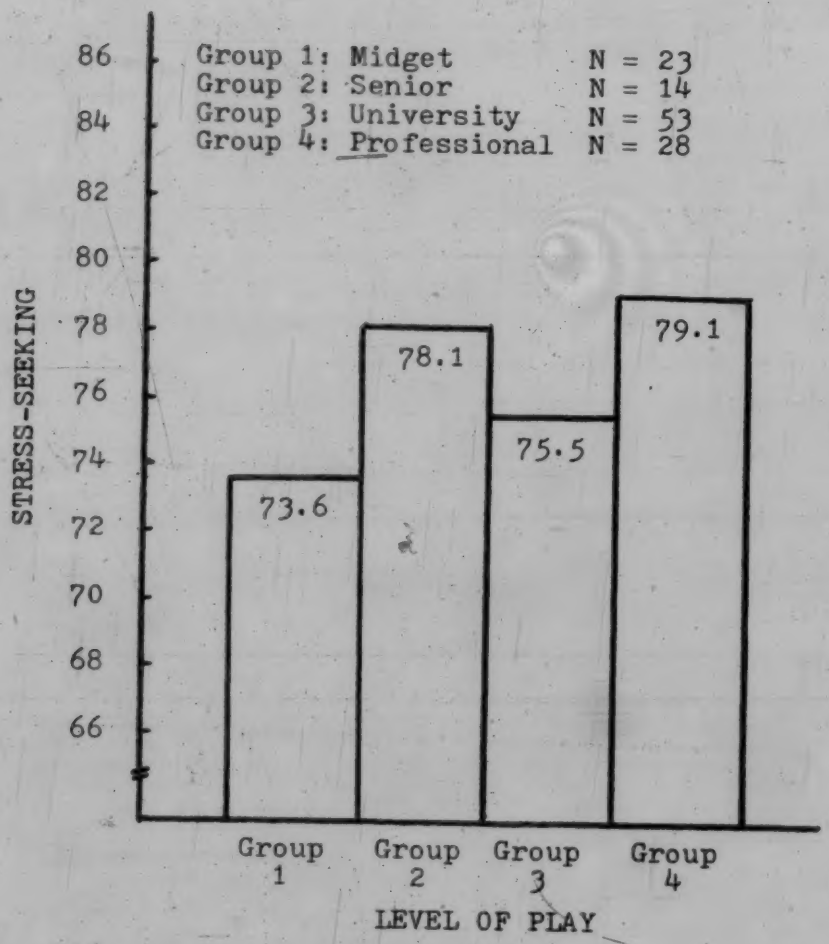
The findings for hypothesis C are in support of the null hypothesis. The mean score of each of the four levels was non-significant at the five percent level and the subgroups were found to be statistically the same. Figure 3 indicates that, in general, as the level increased from the midget goaltenders to the professional goaltenders, the mean score on the stress-seeking scale also increased.

A difference approaching significance ($P = .137$) is worthy of note. Once again, a slight fluctuation occurred at the senior and university levels, with the mean for university goaltenders falling lower than the mean for the senior goaltenders. There was no absolute justification for ranking the senior and university goaltenders in the order that they were placed but rather it was assumed the caliber of play increased from midget, to senior, to university, to the professional ranks. If the positions of the senior and university subgroups were interchanged, then a uniform

increase in the mean stress-seeking scores would be evident with the level of play.

Figure 3

STRESS-SEEKING AND LEVEL OF PLAY*



*N = 116

Hypothesis D: No difference in stress-seeking tendencies will be observed between amateur and professional goaltenders.

On the basis of the information obtained by the analysis of hypothesis D, the null hypothesis was supported. When the scores on the questionnaires were totaled, the difference

between the amateurs and professionals was not significant at the .05 level. The mean response score for the professional group was higher than the mean score for the amateurs. The results did approach significance ($P \leq .07$) indicating a difference in the manner in which the two groups responded to the questionnaire. This information is presented in Table VI.

TABLE VI

MEAN STRESS-SEEKING SCORES OF AMATEURS AND PROFESSIONALS

GROUP	$\bar{X}$ SCORE	F. PROB.
Amateur (N = 89)	75.40	.07
Professional (N = 27)	79.04	.07
Total (N = 116)	76.06	

Hypothesis E: No difference in stress-seeking tendencies will exist between a goaltender's responses in hockey situations compared to his responses in general life situations.

A two-tailed t-test for testing hypotheses about two populations' means was used for hypothesis E. It indicated that no significant difference existed between the respondents' score on the general life questions in comparison to their score on the goaltending questions. These findings are in support of the null hypothesis and are

illustrated in Table VII.

TABLE VII

TOTAL LIFE SCORE RELATED TO TOTAL HOCKEY SCORE

	$\bar{X}$ SCORE	2-TAILED PROB.
Life Total (N = 118)	37.51	.082
Hockey Total (N = 118)	38.59	.082

When the hockey total and the life total were compared on the basis of amateur and professional status, some interesting findings were noted. Comparing the life totals, it was found that a significant difference did not exist between the scores of the amateurs and professionals, however a highly significant ($P \leq .007$) difference was observed on the hockey totals, with the mean of the professional group being higher than the mean of the amateur group. These comparisons are given in Table VIII.

This finding indicated that there was very little difference in how the amateurs and professionals responded to stress situations in general life, but there was a statistically significant difference between the two in hockey situations. This suggests the professionals react differently than the amateurs once they enter a hockey situation.

TABLE VIII

HOCKEY STRESS-SEEKING AND LIFE STRESS-SEEKING OF AMATEURS AND PROFESSIONALS

	$\bar{X}$	F. PROB.
Life Total		.830
Amateur (N = 89)	37.79	
Professional (N = 27)	38.04	
Hockey Total		.007
Amateur (N = 89)	37.87	
Professional (N = 27)	41.00	

This difference relates directly to what Festinger (1962) has termed "cognitive dissonance". He suggested that when an individual acts or behaves differently in two similar situations there must be some psychological mechanism that allows him to reduce this discrepancy. The person's actions are not psychologically consistent and therefore he needs a rationalization or justification in an attempt to make the two more consonant. Each person has a variety of ways in which he attempts to make two psychologically inconsistent situations more consistent with one another.

Perhaps this difference could be accounted for due to the fact that the livelihood of the professional is at stake in hockey situations whereas the same is not true for the amateur. The expectations placed on the professional in a hockey situation appear to be different from the expectations in a general life situation.

A modest correlation of .51 was found to exist between the means of the respondents' total score on the general life statements in relation to the means of their total score on the hockey statements.

IV. DISCUSSION OF THE INSTRUMENT AND METHODOLOGY

The instrument for this study was designed by the investigator to meet the specific objectives of this study. Certain structural flaws were detected in the questionnaire and it is conceivable that others exist. The questionnaire was designed to examine a new area with respect to goaltending and it is hoped that in future studies some of these errors can be controlled or completely eliminated.

The questionnaire contained structural errors. In part A question one, there was no place for a seventeen year old goaltender to indicate his age. The categories presented for choice included under 17, and 18 to 23 years. In question two of the same section, the goaltenders were given five subgroups from which they were to indicate their years of goaltending experience. The number of years in the groupings for experience overlapped, allowing a goaltender with exactly ten years, or exactly fifteen years, of experience to respond to two of the subgroups. Also, in part A question 8i, statements a and d, while worded differently, indicated similar reasons for continuing goaltending.

A number of possible biases should also be pointed out in relation to this questionnaire. In parts B and C, the subjects were forced to choose according to a four-point

Likert scale. It was assumed the distance between the scales was uniform, yet the difference in distinction between the choices of agree and disagree may not be equal to the difference between agree and highly agree or disagree and highly disagree. Secondly, there is a bias in that the wording of some of the statements in sections B and C were ambiguous, in that the individual was left to interpret his own meaning to words such as risk and challenge. Naturally, individuals will differ in their connotation of such terms. It should also be mentioned that one's answers from part B (general life questions) may have biased his answers for part C (goaltending statements).

Fifty-eight percent of the questionnaires were completed and returned. For both the midget and senior samples the prospective respondents were telephoned before the questionnaire was mailed and thus, verbal commitment was given for cooperation in this study. After two weeks, if no reply had been received a reminder letter was sent to the residence of the subject.

Sixty-five percent of the questionnaires sent to the university goaltenders were returned. They were mailed to the coaches of the respective universities and therefore the onus was on the coach to forward the questionnaires to the goaltenders on his team. The questionnaires would have arrived at the universities at the end of the school term, just as examinations were beginning.

The questionnaires for the professional goaltenders were also sent to the coaches of the various teams. They would have arrived at the cities in question during the last week of regular season's play. Thirty-five percent of the goaltenders returned the questionnaires. Factors such as end of season commitments or playoff competition may have limited the number of returns. Another limiting factor may have been that the questionnaires mailed to the United States did not have a stamp on the self-addressed return envelope.

CHAPTER V

SUMMARY AND CONCLUSIONS

I. SUMMARY

This chapter presents a brief résumé of the purpose and design of the study and, in condensed form, the major findings of the research reported in detail earlier. The purpose of this study was to determine the importance of the stress-seeking motive in relation to ice hockey goaltenders. The objectives were fivefold: to see if any significant differences could be observed due to age, years of experience, or level of competition, and between amateurs and professionals and between the subjects' responses in general life experiences compared to goaltending situations.

Five hypotheses were presented in the null hypothesis form. They stated that there would be no significant differences in stress-seeking tendencies with respect to age, years of experience, level of competition, between amateurs and professionals and between general life and goaltending situations.

A three-part, stress-seeking questionnaire was devised for this study. The first part was designed to gather background information on the personal characteristics of the subjects, while sections B and C related directly to stress-seeking and/or stress-avoiding experiences. Eighteen statements were placed in both the general life and the hockey experiences sections.

One hundred and eighteen subjects were used for this study, 23 midget goaltenders, 14 senior goaltenders, 53 university goaltenders and 28 professional goaltenders. Each subject completed a questionnaire designed for this project. The subjects were grouped according to four different criteria; age, experience, level of competition and status (amateur or professional). An analysis of variance was performed on the mean scores according to each of these groupings. A t-test analysis was used to examine differences between the subjects' responses in general life situations and their responses on the goaltending statements. In all cases the level of confidence was chosen at .05.

Results indicated that there were no significant differences on the mean scores in regards to stress-seeking when the responses were analyzed according to age and level of play. Also, no significant differences were observed between the mean score of the amateur goaltenders and the mean score of the professional goaltenders, nor between the means of responses on the general life statements and the goaltending statements. A significant difference was apparent in relation to the number of seasons of goaltending experience.

II. CONCLUSIONS

On the basis of the results obtained in this study, the following conclusions were drawn from the analyses.

(A) There was no significant difference in the stress-seeking tendencies of goaltenders based on the various age

groups tested.

(B) There was a significant difference in the stress-seeking tendencies of goaltenders in relation to years of goaltending experience.

(C) There was no significant difference in the stress-seeking responses according to the level of competition in which each was involved.

(D) There was no significant difference when the stress-seeking mean scores of the amateur goaltenders and professional goaltenders were compared.

(E) There was no significant difference between the respondents' stress-seeking mean score on the goaltending statements compared to the mean score on the general life statements.

III. RECOMMENDATIONS FOR FURTHER STUDY

In order to assist individuals who may be interested in pursuing further study in this particular area of goaltending research, the following recommendations have been made:

1. A more indepth study of ice hockey goaltenders and stress-seeking tendencies should be undertaken to examine more closely differences on the basis of age, between amateurs and professionals, and between general life situations and hockey situations.

2. A study of goaltenders, using basically the same design as in the preceding thesis, but utilizing a more sensitive stress-seeking instrument.

3. A study using a general stress-seeking instrument in which ice hockey goaltenders are compared to a sample of the normal population.

4. A study comparing the stress-seeking incentive of goaltenders, forwards and defensemen.

5. A study to examine stress-seeking responses of goaltenders and other individuals in stressful, sporting situations. This could include pitchers in baseball and quarterbacks in football.

6. A study to examine differences between ice hockey goaltenders and goaltenders in other sports such as field hockey, lacrosse, soccer and team handball.

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APPENDIX A

GOALTENDERS QUESTIONNAIRE

INTRODUCTION:

This is a questionnaire designed to assess your feelings concerning why you initially became an ice-hockey goaltender and also why you continue to be one. The questionnaire is in three parts: the first part is to obtain general background information while the second and third parts consist of a series of thirty-six statements attempting to assess your feelings regarding goaltending.

PART A:

ANSWER ALL QUESTIONS. PLACE YOUR ANSWERS ON THESE PAGES.

1. Age (Check ✓)

   Under 17 years ___
   18 - 23 years ___
   24 - 29 years ___
   30 - 34 years ___
   Over 35 years ___

2. Total number of years of goaltending experience? (Check ✓)

   Less than 5 years ___
   Between 5 and 10 years ___
   Between 10 and 15 years ___
   Between 15 and 20 years ___
   More than 20 years ___

3. Approximate goals against average this year? _____

4. In the following question please include brothers or sisters who may have died.

   How many older sisters do you have? __ Younger sisters? __
   How many older brothers do you have? __ Younger brothers? __

   Then you are the _____ born in a family of
   1st, 2nd, etc.
   ___ children.

5. Occupation of parents: Father _____
   Mother _____

6. Level of play:
   - [ ] Midget
   - [ ] Senior
   - [ ] Collegiate
   - [ ] Professional
   - [ ] Other (Please explain) _____

7. Why did you become a goaltender? (Circle the most appropriate answer.)

   a. It was important to me to make the team therefore I was willing to play goal even though I would have preferred to play another position.
   b. My father and/or mother wanted me to play goal.
   c. I wanted to play in goal.
   d. No one else would play this position so I agreed to.
   e. I admired a boy or man who played goal and I wanted to play the same position.
   f. A reason not given above was (please explain) _____
   _____
   _____

8. Answer question 8a if you are a goaltender in an <u>amateur</u> league <u>OR</u> answer question 8b if you are a goaltender in a <u>professional</u> league. (Circle the most appropriate answer.)

i. Why do you continue to be a goaltender in the <u>amateur</u> league?

   a. Opportunities it provides now, or possibilities in the future for higher education.
   b. I like the challenge and excitement of the position.
   c. I can not play any other position well enough to make this team.
   d. I hope to get an education through hockey.
   e. It is my best chance to make it as a professional.
   f. A reason not given above was (please explain) _____
   _____
   _____

ii. Why do you continue to be a goaltender in the <u>professional</u> league?

   a. Opportunities it provides now, or possibilities in the future for increased earnings.
   b. I like the challenge and excitement of the position.
   c. A reason not given above was (please explain) _____
   _____
   _____

Go on to Part B.

PART B AND PART C:

All questions must be answered. It is of utmost importance that you answer these questions as accurately and truthfully as you can, so that the assessment of your answers can be a valid and reliable one. Your responses should reflect your first thoughts, rather than considered answers. Try to decide which of the four alternatives you agree with the most and then check the appropriate space. As an example, for each statement you should ask yourself "How strongly do I agree or disagree with that statement?" There are no "right" or "wrong" answers to these questions. The answer that most accurately describes what you think or feel is right for you. It may be completely different from the answer another goaltender would give. Your answer is right for you. His answer is right for him. On some questions there may be no answer that exactly fits how you feel and on others there may be more than one that fits. In these cases choose the answer which comes closest to the way you feel.

With your pencil, on the accompanying answer sheet, simply mark, between the lines, the position on the scale which best corresponds to your answer.

As an example: I enjoy gambling for small stakes.

If you highly agree with this statement, or if it is highly indicative of you or of your feelings, mark the appropriate position.

Highly Agree (HA)	Agree (A)	Disagree (D)	Highly Disagree (HD)
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Responses for the next two sections are to be placed on the accompanying answer sheet.

PART B: THESE ARE GENERAL QUESTIONS, ANSWER THEM AS THEY RELATE TO YOUR EXPERIENCES OUTSIDE OF HOCKEY.

ANSWER ALL QUESTIONS ON THE PINK ANSWER SHEET.

1. I like being in the middle of a great deal of excitement and bustle.
2. I am troubled with feelings of inferiority.
3. I am considered a very daring person.
4. I feel great after accomplishing a difficult task.
5. I am confident of my own abilities.
6. I am often troubled by aches and pains.
7. If the odds in doing something are pretty poor, I still believe in giving it a try.
8. I can tolerate pain better than most others.
9. I almost never do anything dangerous for the thrill of it.
10. When faced with a difficult task, I feel challenged.
11. I like having people depend on me.
12. I would prefer to lead a life in which I have very few difficulties to face.
13. I would do almost anything on a dare.
14. I get embarrassed if I am the focus of attention.
15. I dislike competing against weaker opponents.
16. I would rather take the gamble of a job with large but uneven earnings, than one with a steady, smaller salary.
17. I occasionally have a sense of vague danger or sudden dread for no apparent reason.
18. I like a job in which there are reasonable risks rather than one that is routine.

PART C: PLEASE ANSWER THE FOLLOWING QUESTIONS AS THEY RELATE TO YOUR HOCKEY EXPERIENCES.

ANSWER ALL QUESTIONS ON THE PINK ANSWER SHEET.

1. I feel I can handle difficult situations in hockey.
2. I like screenshots and deflections because they make my duties as a goaltender more challenging.
3. I like goaltending because it is dangerous.
4. I am normally very calm during games.
5. I like goaltending because it is exciting.
6. Being able to play regularly is worth the risk of a very serious injury.
7. I do not worry about being injured.
8. Hockey games often leave me shakey and exhausted.
9. I enjoy the pressures associated with being a goaltender.
10. I like to have my teammates depend on me.
11. I like to roam and wander when playing goal.
12. I enjoy facing opponents in break-a-way situations.
13. I am willing to ignore an injury provided I can play regularly.
14. I get nervous when there is a goalmouth scramble.
15. The goaltender, with all his equipment, is probably the safest player on the ice.
16. I enjoy the added excitement when my team has to play one man short.
17. I feel that I am now, or can become the best goaltender in my league.
18. I look forward to playing against teams which are better than my team.

Please return both the answer sheet and the questions.

THANK YOU FOR YOUR COOPERATION!